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(N.H.)

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CONSENT DECREE

FOR

SHARKEY LANDFILL

SUPERFUND SITE

FILED

DEC 02 1994

AT 2:30

WILLIAM T. WALSH  
CLERK

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90-11-2-0-0  
DEPARTMENT OF  
DEC 12 1994  
LANDS DIVISION  
ENFORCEMENT RECORDS

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IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY

----- X  
UNITED STATES OF AMERICA,

Plaintiff,

v.

CDMG REALTY CO., a  
limited partnership,  
HELEN E. RINGLIEB,  
individually, and as general  
partner in CDMG REALTY CO.,  
HMAT ASSOCIATES, INC.,  
TOWNSHIP OF PARSIPPANY-TROY HILLS,  
ALLIED-SIGNAL, INC.,  
BEAZER MATERIALS & SERVICES, INC.,  
CIBA-GEIGY CORPORATION,  
HOECHST CELANESE CORP.,  
OCCIDENTAL CHEMICAL CORP.,  
PFIZER, INC.,  
CARL GULICK, INC.,

Defendants.  
----- X

STATE OF NEW JERSEY  
DEPARTMENT OF ENVIRONMENTAL  
PROTECTION,

Plaintiff,

v.

CIBA-GEIGY CORPORATION, INC.;  
CURTISS-WRIGHT CORPORATION;  
HOECHST-CELANESE CORPORATION;  
KETCHAM AND MC DOUGALL, INC.;  
PFIZER, INC.; OCCIDENTAL  
CHEMICAL CORPORATION;  
KOPPERS COMPANY, INC.;  
SHARKEY FARMS, INC.;  
NICHOLAS ENTERPRISES INC.;  
PARKER CHEMICAL COMPANY;  
CHEMICAL WASTE  
MANAGEMENT, INC.,

Defendants.

CIVIL ACTION NOS.

89-4246 (NHP) and

89-4281 (DRD)

Hon. Nicholas H. Politan

U.S. District Court Judge

Hon. Ronald J. Hedges

U.S. Magistrate Judge



## CONSENT DECREE

### I. BACKGROUND

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), filed a complaint in this matter pursuant to Sections 107 and 113 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9607, 9613. The United States' complaint is hereby deemed amended also to request relief pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606.

B. The State of New Jersey (the "State") also filed a complaint in this matter pursuant to Section 107 of CERCLA, 42 U.S.C. § 9607, and N.J.S.A. 13:1D-9, N.J.S.A. 13:1E-3, N.J.S.A. 58:10(a), N.J.S.A. 58:10.

C. The United States and the State seek in this consolidated action, inter alia: (1) reimbursement of costs (including interest) incurred by Plaintiffs for response actions at the Sharkey Landfill Superfund Site ("Site") in Morris County, New Jersey; (2) declaratory judgment as to the liability of named defendants for the contamination at the Site; and (3) design, implementation, operation, and maintenance of a remedy at the Site, including monitoring programs.

D. On July 31, 1991, certain defendants in this action filed a third-party complaint against numerous third-party defendants. This third-party action was styled Beazer Materials & Services, Inc. et al v. Adron, Inc. et al. Certain defendants

in this action are also joining, simultaneously with the lodging of this Consent Decree, additional third-party defendants. Some of the third-party defendants named in this third-party complaint and joinder are defendants who are also settling under this Consent Decree.

E. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of negotiations with potentially responsible parties regarding the implementation of the remedial design and remedial action for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree. The State has participated in such negotiations.

F. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), EPA notified the Federal natural resource trustee(s) of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree. The State natural resource trustee has also been made aware of the negotiations.

G. The Defendants that have signed this Consent Decree do not admit any liability to the Plaintiffs arising out of the transactions or occurrences alleged in the complaints.

H. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List, set forth at 40

C.F.R. Part 300, Appendix B, by publication in the Federal Register on September 8, 1983, 48 Fed. Reg. 175;

I. In response to a release or a substantial threat of a release of a hazardous substance(s) at or from the Site, the State, pursuant to a cooperative agreement with EPA, commenced in or about September, 1984, a Remedial Investigation and Feasibility Study ("RI/FS") for the Site pursuant to 40 C.F.R. Part 300.430.

J. The State completed a Remedial Investigation ("RI") Report and a Feasibility Study ("FS") Report in or about August, 1986.

K. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action on August 13, 1986, in a major local newspaper of general circulation. EPA provided an opportunity for written and oral comments from the public on the proposed plan for remedial action. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which the Regional Administrator based the selection of the response action.

L. The decision by EPA on the remedial action to be implemented at the Site is embodied in a final Record of Decision ("ROD"), executed on September 29, 1986. The State had a reasonable opportunity to review and comment on the ROD and concurred with the decisions embodied in the ROD. The ROD also includes a responsiveness summary that sets out the responses to

public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA. An Explanation of Significant Differences ("ESD"), was also issued in accordance with Section 300.435 of the NCP and Section 117(c) of CERCLA. The ESD explains changes made to the remedy selected in the ROD and the reasons for such changes.

M. The United States, the State and Defendants desire to settle this matter. The settlement will be structured with two different general groups of defendants, denoted the Settling Defendants ( Owner-Settling Defendants and Non-Owner Settling Defendants) and the De Minimis Settling Defendants.

N. Based on the information now available to EPA and the State, EPA and the State believe that the Work will be properly and promptly conducted by the Settling Defendants if conducted in accordance with the requirements of this Consent Decree and its appendices.

O. Solely for the purposes of Section 113(j) of CERCLA, the Remedial Action selected by the ROD, as explained and clarified in the ESD, and the Work to be performed by the Settling Defendants at the Site, as set forth in Appendix B to this Consent Decree, shall constitute a response action taken or ordered by the President.

P. EPA has determined that the requirements of Section 122 (g) of CERCLA, 42 U.S.C. Section 9622(g), are satisfied with respect to the De Minimis settlement as follows:

1. The settlement with the De Minimis Settling Defendants embodied in this Consent Decree is practicable and in the public interest.

2. This settlement involves only a minor portion of the response costs at the Facility with respect to each De Minimis Settling Defendant herein.

3. Information currently known to EPA and the State indicates that the total amount of hazardous substances contributed to the Facility by each De Minimis Settling Defendant herein is minimal in comparison to the amount of hazardous substances contributed to the Facility.

4. Information currently known to EPA and the State indicates that the toxic or other hazardous effects of the hazardous substances contributed to the Facility by each De Minimis Settling Defendant herein are minimal in comparison to other hazardous substances at the Facility.

Q. The Parties recognize, and the Court finds, that this Consent Decree has been negotiated by the Parties in good faith; that the implementation of this Consent Decree will expedite the cleanup of the Site and will obviate the need for prolonged and complicated litigation between the Plaintiffs and the Defendants; and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

## II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over the Defendants. Solely for the purposes of this Consent Decree and the underlying complaints, Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. Defendants shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

## III. PARTIES BOUND

2. This Consent Decree applies to and is binding upon the United States and the State and upon Defendants and their successors and assigns. Any change in ownership or corporate status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property shall in no way alter such Settling Defendant's responsibilities under this Consent Decree.

3. Settling Defendants shall provide a copy of this Consent Decree to each contractor hired to perform the Work (as defined below) required by this Consent Decree and to each person representing any Settling Defendant with respect to the Site or the Work and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. Settling Defendants or their contractors shall

provide written notice of the Consent Decree to all subcontractors hired to perform any portion of the Work required by this Consent Decree. Settling Defendants shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work contemplated herein in accordance with this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with the Settling Defendants within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

#### IV. DEFINITIONS

4. Unless otherwise expressly provided herein, terms used in this Consent Decree which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601 et seq.

"Consent Decree" shall mean this Decree and all appendices attached hereto (listed in Section XXX).. In the event of conflict between this Decree and any appendix, this Decree shall control.

"Day" shall mean a calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

"Defendants" shall mean the Owner-Settling Defendants, the Non-Owner Settling Defendants, and the De Minimis Settling Defendants.

"De Minimis Settling Defendants" shall mean those Defendants listed in Appendix E.

"EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

"ESD" shall mean the Explanation of Significant Differences issued on October 4, 1993 which explains and clarifies the ROD. See Appendix "A" to this Consent Decree.

"Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States and the State incur in reviewing or developing plans, reports and other items pursuant to this Consent Decree, monitoring the Work, or otherwise implementing, supervising, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Sections VII, VIII, X (including, but not limited to, attorneys fees and the amount of just



compensation), XVI, and Paragraph 89 of Section XXIII. Future Response Costs shall also include all costs, including direct and indirect costs, paid by the United States and the State in connection with the Site after the dates set forth in the definition of Past Response Costs and the effective date of this Consent Decree and all interest on the Past Response Costs after the dates set forth in the definition of Past Response Costs to the date of payment of Past Response Costs.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including, but not limited to, any amendments thereto.

"NJDEPE" shall mean the New Jersey Department of Environmental Protection and Energy and any successor departments or agencies of the State.

"Non-Owner Settling Defendants" shall mean those Settling Defendants listed in Appendix D.

"Operation and Maintenance" or "O & M" shall mean all activities required to maintain the effectiveness of the Remedial Action as required under the Operation and Maintenance Plan approved or developed by EPA pursuant to this Consent Decree and the Statement of Work ("SOW").

"Owner Settling Defendants" shall mean the Settling Defendants listed in Appendix F.

"PTH STP" shall mean the Parsippany-Troy Hills sewage treatment plant located immediately adjacent to the South Fill at the Site. Except as otherwise provided in this Consent Decree, ESD, or SOW, the Parties do not intend this Consent Decree to interfere with the ordinary and necessary handling and management of materials by the PTH STP on its site nor do they intend this Consent Decree to interfere with the ordinary and necessary shipment of materials off-site that are generated by the normal operations of the PTH STP.

"Paragraph" shall mean a portion of this Consent Decree identified by an arabic numeral or an upper case letter.

"Parties" shall mean the United States, the State of New Jersey, the Settling Defendants (Owner Settling Defendants and Non-Owner Settling Defendants) and the De Minimis Settling Defendants.

"Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs and interest that: (a) EPA incurred and paid with regard to the Site through February 28, 1993; (b) the Department of Justice incurred and paid with regard to the Site through April 30, 1993; and (c) the State incurred and paid with regard to the Site through June 25, 1993.

"Performance Standards" shall mean those cleanup standards, standards of control, and other substantive requirements, criteria or limitations set forth in the ROD, as explained and clarified by the ESD, and contained in the SOW.

"Plaintiffs" shall mean the United States and the State of New Jersey.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901 et seq. (also known as the Resource Conservation and Recovery Act).

"Record of Decision" or "ROD" shall mean the EPA Record of Decision relating to the Sharkey Farms Landfill Superfund Site signed on September 29, 1986, by the Regional Administrator, EPA Region II, attached in Appendix "A" and all attachments thereto.

"Remedial Action" shall mean those activities, except for Operation and Maintenance, to be undertaken by the Settling Defendants to implement the final plans and specifications submitted by the Settling Defendants pursuant to the Remedial Design Work Plan and approved by EPA.

"Remedial Action Work Plan" shall mean the document submitted by the Settling Defendants pursuant to Paragraph 12.a of this Consent Decree and described more fully in Paragraph 12.b.

"Remedial Design" shall mean those activities to be undertaken by the Settling Defendants to develop the final plans and specifications for the Remedial Action pursuant to the Remedial Design Work Plan.

"Remedial Design Work Plan" shall mean the document submitted by the Settling Defendants pursuant to Paragraph 11.a of this Consent Decree and described more fully in Paragraph 11.b.

"Section" shall mean a portion of this Consent Decree identified by a roman numeral.

"Settling Defendants" shall mean those Defendants identified in Appendices D (Non-owner Settling Defendants), and F (Owner Settling Defendants).

"Site" shall mean the Sharkey Farms Landfill Superfund site, encompassing approximately 90 acres of irregularly shaped, disconnected areas, located at Parsippany-Troy Hill and East Hanover in Morris County, New Jersey, also known as Block 765, Lots 81, 88 and 89; Block 768, Lots 1, 2 and 3; Block 769, Lot 1; Block 770, Lot 7 and Block 771, Lot 1 in Parsippany-Troy Hills Township and Block 5, Lots 1 and 2 in East Hanover Township, County of Morris, State of New Jersey, and depicted generally on the map attached as Appendix C.

"State" shall mean the State of New Jersey.

"Statement of Work" or "SOW" shall mean the statement of work for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance at the Site, as set forth in Appendix B to this Consent Decree and any modifications made in accordance with this Consent Decree. The Statement of Work is incorporated into and is enforceable under this Consent Decree.

"Supervising Contractor" shall mean the principal contractor retained by the Settling Defendants to supervise and direct the implementation of the Work under this Consent Decree.

"United States" shall mean the United States of America.

"U.S. Future Response Costs Other than U.S. Supervisory Costs" shall mean all direct and indirect costs, including but not limited to payroll costs, contractor costs, travel costs, and laboratory costs, within the definition of Future Response Costs incurred by the United States, other than U.S. Supervisory Costs. U.S. Future Response Costs Other than U.S. Supervisory Costs shall include all costs, including direct and indirect costs, paid by the United States after the dates set forth in the definition of Past Response Costs and the effective date of this Consent Decree and all interest on the Past Response Costs after the dates set forth in the definition of Past Response Costs to the date of payment of Past Response Costs. U.S. Future Response Costs shall also include any costs incurred by the United States in performing any obligations, pursuant to Section VII, Section VIII, Paragraph 28 of Section X, Paragraph 39 of Section XII, last sentence of Paragraph 49 of Section XVI, and Paragraph 89 of Section XXIII of this Consent Decree, any costs incurred by the United States for enforcement of this Consent Decree, and any other costs incurred by the United States related to this Consent Decree other than U.S. Supervisory Costs.

"U.S. Supervisory Costs" means the direct and indirect costs, within the definition of Future Response Costs, incurred by the United States for review, inspection, analysis, monitoring, and supervision of the performance of the Work by Settling Defendants required under the terms of this Consent

Decree, including but not limited to payroll, travel, contractor and laboratory costs incurred for this purpose.

"Waste Material" shall mean (1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and (4) any "hazardous material" under the New Jersey Spill Compensation and Control Act, N.J.S.A. 58:10, et seq.

"Work" shall mean all activities Settling Defendants are required to perform under this Consent Decree, including attainment of Performance Standards, except those required by Section XXVIII (Retention of Records).

#### V. GENERAL PROVISIONS

##### 5. Objectives of the Parties

The objectives of the Parties in entering into this Consent Decree are to protect public health and welfare and the environment at the Site by the design and implementation of response actions at the Site by the Settling Defendants, to resolve the liabilities of the De Minimis Settling Defendants, and to reimburse response costs of the Plaintiffs.

##### 6. Commitments by Settling Defendants

a. Settling Defendants shall finance and perform the Work in accordance with this Consent Decree and all plans, standards, specifications, and schedules set forth in or developed and approved by EPA pursuant to this Consent Decree.

Settling Defendants shall also reimburse the United States and the State for Past Response Costs and Future Response Costs as provided in this Consent Decree.

b. The obligations of Settling Defendants to finance and perform the Work and to pay amounts owed the United States and the State under this Consent Decree are joint and several. In the event of the insolvency or other failure of any one or more Settling Defendants to implement the requirements of this Consent Decree, the remaining Settling Defendants shall complete all such requirements.

c. The Owner Settling Defendants and the Non-Owner Settling Defendants agree between themselves to perform portions of the Work as set forth in Appendix G. The Plaintiffs are not a party to that agreement. Notwithstanding anything in Appendix G, all the Settling Defendants shall remain jointly and severally liable for performance of all the Work required by this Consent Decree and for payment of all amounts owed to the United States and the State pursuant to this Consent Decree. Appendix G shall not affect in any manner any obligation of the Settling Defendants to the Plaintiffs under this Consent Decree, including the obligation to perform all Work in accord with schedules established pursuant to this Consent Decree.

#### 7. Compliance With Applicable Law

All activities undertaken by Settling Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and

regulations. Settling Defendants must also comply with all applicable or relevant and appropriate requirements of all Federal and State environmental laws as set forth in the ROD, the ESD, and the SOW. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be considered to be consistent with the NCP.

**8. Permits**

a. As provided in Section 121(e) of CERCLA and Part 300.5 of the NCP, no permit shall be required for any portion of the Work conducted entirely on-Site. For purposes of Section 121(e) of CERCLA, on-Site shall include those portions of the Rockaway and Whippany Rivers in which Work is performed. Where any portion of the Work requires a federal or state permit or approval, Settling Defendants shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

b. The Settling Defendants may seek relief under the provisions of Section XIX (Force Majeure) of this Consent Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit required for the Work.

c. This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

**9. Notice of Obligations to Successors-in-Title**



a. Within fifteen (15) days after the entry of this Consent Decree, the Owner Settling Defendants shall record a certified copy of this Consent Decree with the Recorder's Office or the Registry of Deeds or other appropriate office, County of Morris, State of New Jersey. Thereafter, each deed, title, or other instrument conveying an interest in the property included in the Site shall contain a notice stating that the property is subject to this Consent Decree and any lien retained by the United States, and shall reference the recorded location of the Consent Decree and any restrictions applicable to the property under this Consent Decree.

b. The obligations of each Owner Settling Defendant with respect to the provision of access under Section X (Access) shall be binding upon any and all such Owner Settling Defendants and any and all persons who subsequently acquire any interest in the Site or portion thereof (hereinafter "Successors-in-Title"). Within fifteen (15) days after the entry of this Consent Decree, each Owner Settling Defendant shall record at the Recorder's Office or Registry of Deeds or other appropriate office where land ownership and transfer records are maintained for the property, a notice of obligation to provide access under Section X (Access) and related covenants. Each subsequent instrument conveying an interest to any such property included in the Site shall reference the recorded location of such notice and covenants applicable to the property.

c. Any Owner Settling Defendants and any Successor-in-Title shall, at least thirty (30) days prior to the conveyance of any such interest, give written notice of this Consent Decree to the grantee and written notice to EPA and the State of the proposed conveyance, including the name and address of the grantee, and the date on which notice of the Consent Decree was given to the grantee. In the event of any such conveyance, the Settling Defendants' obligations under this Consent Decree, including their obligations to provide or secure access pursuant to Section X, shall continue to be met by the Settling Defendants. In addition, if the United States and the State approve, the grantee may perform some or all of the Work under this Consent Decree. In no event shall the conveyance of an interest in property that includes, or is a portion of, the Site release or otherwise affect the liability of the Settling Defendants to comply with the Consent Decree.

#### VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS

##### 10. Selection of Supervising Contractor.

a. All aspects of the Work to be performed by Settling Defendants pursuant to Sections VI (Performance of the Work by Settling Defendants), VII (Additional Response Actions), VIII (U.S. EPA Periodic Review), and IX (Quality Assurance, Sampling and Data Analysis) of this Consent Decree shall be under the direction and supervision of the Supervising Contractor, the selection of which shall be subject to disapproval by EPA, after a reasonable opportunity for review and comment by the State. By

means of submitting a Site Management Plan within ninety (90) days after the lodging of this Consent Decree, Settling Defendants shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be the Supervising Contractor. EPA will issue a notice of disapproval or an authorization to proceed. If at any time thereafter, Settling Defendants propose to change a Supervising Contractor, Settling Defendants shall give such notice to EPA and the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the new Supervising Contractor performs, directs, or supervises any Work under this Consent Decree.

b. If EPA disapproves a proposed Supervising Contractor, EPA will notify Settling Defendants in writing. Settling Defendants shall submit to EPA and the State a list of contractors, including the qualifications of each contractor, that would be acceptable to them within thirty (30) days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect to any of the other contractors. Settling Defendants may select any contractor from that list that is not disapproved and shall notify EPA and the State of the name of the contractor selected within twenty-one (21) days of EPA's authorization to proceed.

c. If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents the Settling Defendants from meeting one or more deadlines in a plan approved by the EPA pursuant to this Consent Decree, Settling Defendants may seek relief under the provisions of Section XIX (Force Majeure) hereof.

11. Remedial Design.

a. Within sixty (60) days after EPA's issuance of an authorization to proceed pursuant to Paragraph 10, Settling Defendants shall submit to EPA and the State a work plan for the design of the Remedial Action at the Site ("Remedial Design Work Plan"). The Remedial Design Work Plan shall provide for design of the remedy set forth in the ROD, as explained and clarified by the ESD, in accordance with the SOW and, upon its approval by EPA, shall be incorporated into and become enforceable under this Consent Decree. Within sixty (60) days after EPA's issuance of an authorization to proceed, the Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field design activities which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. Part 1910.120.

b. The Remedial Design Work Plan shall include plans and schedules for implementation of all remedial design and pre-design tasks identified in the SOW, including, but not limited to, plans and schedules for the completion of the

following items: (1) design sampling and analysis plan (including, but not limited to, a Remedial Design Quality Assurance Project Plan (RD QAPP) in accordance with Section IX (Quality Assurance, Sampling and Data Analysis)); (2) a treatability study; (3) a Pre-design Work Plan; (4) a preliminary design submittal; (5) an intermediate design submittal; (6) a pre-final/final design submittal; and (7) a Construction Quality Assurance Plan. In addition, the Remedial Design Work Plan shall include a schedule for completion of the Remedial Action Work Plan.

c. Upon approval of the Remedial Design Work Plan by EPA, after a reasonable opportunity for review and comment by the State, and submittal of the Health and Safety Plan for all field activities to EPA and the State, Settling Defendants shall implement the Remedial Design Work Plan. The Settling Defendants shall submit to EPA and the State all plans, submittals and other deliverables required under the approved Remedial Design Work Plan in accordance with the approved schedule for review and approval pursuant to Section XII (Submissions Requiring Agency Approval). Unless otherwise directed by EPA, Settling Defendants shall not commence further Remedial Design activities at the Site prior to approval of the Remedial Design Work Plan.

d. The preliminary design submittal shall include, at a minimum, the following: (1) design criteria; (2) results of treatability studies; (3) results of additional field sampling and pre-design work; (4) project delivery strategy; (5)

preliminary plans, drawings and sketches; (6) required specifications in outline form; and (7) preliminary construction schedule.

e. The intermediate design submittal, if required by EPA or if independently submitted by the Settling Defendants, shall be a continuation and expansion of the preliminary design. Any value engineering proposals must be identified and evaluated during this review.

f. The pre-final/final design submittal shall include, at a minimum, the following: (1) final plans and specifications; (2) Operation and Maintenance Plan; (3) Construction Quality Assurance Project Plan (CQAPP); (4) Field Sampling Plan (directed at measuring progress towards meeting Performance Standards); and (5) Contingency Plan. The CQAPP, which shall detail the approach to quality assurance during construction activities at the site, shall specify a quality assurance official ("QA Official"), independent of the Construction Contractor, to conduct a quality assurance program during the construction phase of the project. In the event the Settling Defendants select a Design Contractor that is the Construction Contractor, the CQAPP shall specify a QA Official independent of the Design Contractor.

## **12. Remedial Action.**

a. Within ninety (90) days after the approval of the final design submittal, Settling Defendants shall submit to EPA and the State, a work plan for the performance of the Remedial Action at the Site ("Remedial Action Work Plan"). The Remedial

Action Work Plan shall provide for construction of the remedy, in accordance with the SOW, as set forth in the design plans and specifications in the approved final design submittal. Upon its approval by EPA, the Remedial Action Work Plan shall be incorporated into and become enforceable under this Consent Decree. At the same time as they submit the Remedial Action Work Plan, Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field activities required by the Remedial Action Work Plan which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. Part 1910.120.

b. The Remedial Action Work Plan shall include, but not be limited to, the following: (1) the schedule for completion of the Remedial Action; (2) method for selection of the contractor; (3) schedule for developing and submitting other required Remedial Action plans; (4) methodology for implementation of the Construction Quality Assurance Plan; (5) a groundwater monitoring plan; (6) methods for satisfying permitting requirements; (7) methodology for implementation of the Operation and Maintenance Plan; (8) methodology for implementation of the Contingency Plan; (9) tentative formulation of the Remedial Action team; (10) construction quality control plan; and (11) procedures and plans for the decontamination of equipment and the disposal of contaminated materials. The Remedial Action Work Plan also shall include a schedule for

implementation of all Remedial Action tasks identified in the final design submittal and shall identify the initial formulation of the Settling Defendants' Remedial Action Project Team (including, but not limited to, the Supervising Contractor).

c. Upon approval of the Remedial Action Work Plan by EPA, after a reasonable opportunity for review and comment by the State, Settling Defendants shall implement the activities required under the Remedial Action Work Plan. The Settling Defendants shall submit to EPA and the State all plans, submittals, or other deliverables required under the approved Remedial Action Work Plan in accordance with the approved schedule for review and approval pursuant to Section XII (Submissions Requiring Agency Approval). Unless otherwise directed by EPA, Settling Defendants shall not commence physical on-site activities at the Site prior to approval of the Remedial Action Work Plan.

13. The Work performed by the Settling Defendants pursuant to this Consent Decree shall include the obligation to achieve the Performance Standards.

14. Settling Defendants acknowledge and agree that nothing in this Consent Decree, the SOW, or the Remedial Design or Remedial Action Work Plans constitutes a warranty or representation of any kind by Plaintiffs that compliance with the work requirements set forth in the SOW and the Work Plans will achieve the Performance Standards. Settling Defendants' compliance with the work requirements shall not foreclose



Plaintiffs from seeking compliance with all terms and conditions of this Consent Decree, including, but not limited to, the applicable Performance Standards.

15. Settling Defendants shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-State waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to the EPA Project Coordinator of such shipment of Waste Material. However, this notification requirement shall not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

a. The Settling Defendants shall include in the written notification the following information, where available:

(1) the name and location of the facility to which the Waste Material Materials are to be shipped; (2) the type and quantity of the Waste Material to be shipped; (3) the expected schedule for the shipment of the Waste Material; and (4) the method of transportation. The Settling Defendants shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

b. The identity of the receiving facility and state will be determined by the Settling Defendants following the award of the contract for Remedial Action construction. The Settling

Defendants shall provide the information required by Paragraph 15.a. as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

#### VII. ADDITIONAL RESPONSE ACTIONS

16. In the event that EPA determines or the Settling Defendants propose that additional response actions are necessary to meet the Performance Standards or to carry out the remedy set forth in this Consent Decree, notification of such additional response actions shall be provided to the Project Coordinator for the other parties.

17. Within thirty (30) days of receipt of notice from EPA or Settling Defendants pursuant to Paragraph 16 that additional response actions are necessary (or such longer time as may be specified by EPA), Settling Defendants shall submit for approval by EPA, after reasonable opportunity for review and comment by the State, a work plan for the additional response actions. The plan shall conform to the applicable requirements of Paragraphs 11 and 12. Upon approval of the plan pursuant to Section XII (Submissions Requiring Agency Approval), Settling Defendants shall implement the plan for additional response actions in accordance with the schedule contained therein.

18. Any additional response actions that Settling Defendants propose are necessary to meet the Performance Standards or to carry out the remedy set forth in this Consent Decree shall be subject to approval by EPA, after reasonable opportunity for review and comment by the State, and, if

authorized by EPA, shall be completed by Settling Defendants in accordance with plans, specifications, and schedules approved or established by EPA pursuant to Section XII (Submissions Requiring Agency Approval).

19. Settling Defendants may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination that additional response actions are necessary to meet the Performance Standards or to carry out the remedy set forth in this Consent Decree. Such a dispute shall be resolved pursuant to Paragraphs 62-65 of this Consent Decree.

#### VIII. EPA PERIODIC REVIEW

20. Settling Defendants shall conduct any studies and investigations that EPA deems necessary in order to permit EPA to conduct reviews at least every five years as required by Section 121(c) of CERCLA and any applicable regulations. Costs incurred by EPA in reviewing such studies and investigations shall be borne by EPA. However, any other costs incurred by EPA pursuant to Section VIII shall be paid by the Settling Defendants and remitted to EPA in accordance with Paragraph 52 a.

21. If required by Sections 113(k)(2) or 117 of CERCLA, Settling Defendants and the public will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to Section 121(c) of CERCLA and to submit written comments for the record during the public comment period. After the period for submission of written comments is closed, the Regional

Administrator, EPA Region II, or his/her delegate will determine in writing whether further response actions are required in order to assure that human health and the environment are protected from releases of hazardous substances from the Site.

22. If the Regional Administrator, EPA Region II, or his/her delegate determines that information received, in whole or in part, during the review conducted pursuant to Section 121(c) of CERCLA, indicates that the Remedial Action is not protective of human health and the environment, the Settling Defendants shall undertake any further response actions EPA has determined are appropriate, unless their liability for such further response actions is barred by the Covenant Not to Sue set forth in Section XXIII. Settling Defendants shall submit a plan for such work to EPA for approval in accordance with the procedures set forth in Section VI (Performance of the Work by Settling Defendants) and shall implement the plan approved by EPA. The Settling Defendants may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute (1) EPA's determination that the Remedial Action is not protective of human health and the environment, (2) EPA's selection of the further response actions ordered was arbitrary and capricious or otherwise not in accordance with law, or (3) EPA's determination that the Settling Defendant's liability for the further response actions requested is reserved in Paragraphs 85, 86, or 88 or otherwise not barred by the Covenant Not to Sue set forth in Section XXIII.

## IX. QUALITY ASSURANCE, SAMPLING, and DATA ANALYSIS

23. Settling Defendants shall use quality assurance, quality control, and chain of custody procedures as defined or set forth in the SOW for all treatability, design, compliance and monitoring samples in accordance with EPA's "Interim Guidelines and Specifications For Preparing Quality Assurance Project Plans," December 1980, (QAMS-005/80); "Data Quality Objective Guidance," (EPA/540/G87/003 and 004); "EPA NEIC Policies and Procedures Manual," May 1978, revised November 1984, (EPA 330/9-78-001-R); "Region II CERCLA Quality Assurance Manual," dated October 1989; and subsequent amendments to such guidelines upon notification by EPA to Settling Defendants of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendants shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a Quality Assurance Project Plan ("QAPP") to EPA and the State that is consistent with the SOW, the NCP, and applicable guidance documents as identified to Settling Defendants by EPA, including those referenced above. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence as against Settling Defendants, without objection, in any proceeding under this Decree. Settling Defendants shall ensure that EPA and State personnel and their

authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Defendants in implementing this Consent Decree. In addition, Settling Defendants shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. Settling Defendants shall ensure that the laboratories they utilize for the analysis of samples taken pursuant to this Decree perform all analyses according to accepted EPA methods, as defined or set forth in the SOW. Accepted EPA methods consist of those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," Series 390, latest revision, and any amendments made thereto during the course of the implementation of this Decree. Settling Defendants shall ensure that all laboratories they use for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent QA/QC program.

24. Upon request, the Settling Defendants shall allow split or duplicate samples to be taken by EPA and the State of New Jersey or their authorized representatives. Settling Defendants shall notify EPA and the State of New Jersey not less than 28 days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA and the State of New Jersey shall have the right to take any additional samples that EPA or the State deem necessary. Upon request, EPA and the

State of New Jersey shall allow the Settling Defendants to take split or duplicate samples of any samples it takes as part of the Plaintiffs' monitoring of the Settling Defendant's implementation of the Work.

25. Settling Defendants shall submit to EPA and the State five (5) and three (3) copies, respectively, of the results of all sampling and/or tests or other data obtained or generated by or on behalf of Settling Defendants with respect to the Site and/or the implementation of this Consent Decree unless EPA agrees otherwise pursuant to Section XXXIII of this Decree.

26. Notwithstanding any provision of this Consent Decree, the United States and the State of New Jersey hereby retain all of its information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA and any other applicable statutes or regulations.

#### X. ACCESS

27. Commencing upon the date of lodging of this Consent Decree, the Settling Defendants agree to provide the United States, the State, and their representatives, including EPA and its contractors, access at all reasonable times to the Site and any other property to which access is required for the implementation of this Consent Decree, to the extent access to the property is controlled by Settling Defendants, for the purposes of conducting any activity related to this Consent Decree including, but not limited to:

a. Monitoring the Work;

b. Verifying any data or information submitted to the United States;

c. Conducting investigations relating to contamination at or near the Site;

d. Obtaining samples;

e. Assessing the need for, planning, or implementing additional response actions at or near the Site;

f. Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, consistent with Section XXVI; and

g. Assessing Settling Defendants' compliance with this Consent Decree.

28. To the extent that the Site or any other property to which access is required for the implementation of this Consent Decree is owned or controlled by persons other than Settling Defendants, Settling Defendants shall use best efforts to secure from such persons access for Settling Defendants, as well as for the United States and the State and their representatives, including, but not limited to, their contractors, as necessary to effectuate this Consent Decree. For purposes of this Paragraph "best efforts" includes the payment of reasonable sums of money in consideration of access to tracts or parcels of land owned by persons, firms or corporations that are not Owner non-Settling Defendants in this action. If any access required to complete the Work is not obtained within ninety (90) days of the date of lodging of this Consent Decree, or within 45 days of the date EPA



notifies the Settling Defendants in writing that additional access beyond that previously secured is necessary, Settling Defendants shall promptly notify the United States, and shall include in that notification a summary of the steps Settling Defendants have taken to attempt to obtain access. The United States or the State may, as it deems appropriate, assist Settling Defendants in obtaining access. Settling Defendants shall reimburse the United States or the State, as appropriate, in accordance with the procedures in Section XVII (Reimbursement of Response Costs), for all costs not inconsistent with the NCP incurred by the United States in obtaining access.

29. Notwithstanding any provision of this Consent Decree, the United States and the State retain all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA and any other applicable statute or regulations.

#### XI. REPORTING REQUIREMENTS

30. In addition to any other requirement of this Consent Decree, Settling Defendants shall submit to EPA and the State three (3) copies of written progress reports each month during the implementation of the Remedial Action and thereafter, shall submit written progress reports as required by the SOW. Each progress report shall, as appropriate: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during the previous month; (b) include a summary of all results of sampling and tests and all other data received

or generated by Settling Defendants or their contractors or agents in the previous month; (c) identify all work plans, plans and other deliverables required by this Consent Decree completed and submitted during the previous month; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next six weeks and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts and Pert charts; (e) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays; (f) include any modifications to the work plans or other schedules that Settling Defendants have proposed to EPA or that have been approved by EPA; and (g) describe all activities undertaken in support of the Community Relations Plan during the previous month and those to be undertaken in the next six weeks. Settling Defendants shall submit these progress reports to EPA and the State by the tenth day of every month following the lodging of this Consent Decree until EPA notifies the Settling Defendants pursuant to Paragraph 47.b of Section XV (Certification of Completion). If requested by EPA or the State, Settling Defendants shall also provide briefings for EPA and the State to discuss the progress of the Work.

31. The Settling Defendants shall notify EPA of any change in the schedule described in the monthly progress report for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than 7 days prior to the performance of the activity.

32. Upon the occurrence of any event during performance of the Work that Settling Defendants are required to report pursuant to Section 103 of CERCLA or Section 304 of the Emergency Planning and Community Right-to-know Act (EPCRA), Settling Defendants shall within twenty-four (24) hours of the onset of such event orally notify the EPA Project Coordinator or the Alternate EPA Project Coordinator (in the event of the unavailability of the EPA Project Coordinator), or, in the event that neither the EPA Project Coordinator or Alternate EPA Project Coordinator is available, the Emergency and Remedial Response Division, EPA Region II. These reporting requirements are in addition to the reporting required by CERCLA Section 103 or EPCRA Section 304.

33. Within twenty (20) days of the onset of such an event, Settling Defendants shall furnish to Plaintiffs a written report, signed by the Settling Defendant's Project Coordinator, setting forth the events which occurred and the measures taken, and to be taken, in response thereto. Within 30 days of the conclusion of such an event, Settling Defendants shall submit a report setting forth all actions taken in response thereto.

34. Settling Defendants shall submit five (5) copies of all plans, reports, and data required by the SOW, the Remedial Design

Work Plan, the Remedial Action Work Plan, or any other approved plans to EPA in accordance with the schedules set forth in such plans. Settling Defendants shall simultaneously submit three (3) copies of all such plans, reports and data to the State.

35. All reports and other documents submitted by Settling Defendants to EPA (other than the monthly progress reports referred to above) which purport to document Settling Defendants' compliance with the terms of this Consent Decree shall be signed by an authorized representative of the Settling Defendants.

#### XII. SUBMISSIONS REQUIRING AGENCY APPROVAL

36. After review of any plan, report or other item which is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that the Settling Defendants modify the submission; or (e) any combination of the above.

37. In the event of approval, approval upon conditions, or modification by EPA, pursuant to Paragraph 36(a), (b), or (c), Settling Defendants shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA subject only to their right to invoke the Dispute Resolution procedures set forth in Section XX (Dispute Resolution) with respect to the modifications or conditions made by EPA. In the

event that EPA modifies the submission to cure the deficiencies pursuant to Paragraph 36(c) and the submission has a material defect, EPA retains its right to seek stipulated penalties, as provided in Section XXI.

38. a. Upon receipt of a notice of disapproval pursuant to Paragraph 36(d), Settling Defendants shall, within fourteen (14) days or such other time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other item for approval. Any stipulated penalties applicable to the submission, as provided in Section XXI, shall accrue during the fourteen (14) day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraph 39.

b. Notwithstanding the receipt of a notice of disapproval pursuant to Paragraph 36(d), Settling Defendants shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Settling Defendants of any liability for stipulated penalties under Section XXI (Stipulated Penalties).

39. In the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA, EPA may again require the Settling Defendants to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to amend or develop the plan, report or other item. Settling Defendants shall implement any such plan, report, or

item as amended or developed by EPA, subject only to their right to invoke the procedures set forth in Section XX (Dispute Resolution).

40. If upon resubmission, a plan, report, or item is disapproved or modified by EPA due to a material defect, Settling Defendants shall be deemed to have failed to submit such plan, report, or item timely and adequately unless the Settling Defendants invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution) and EPA's action is overturned pursuant to that Section. The provisions of Section XX (Dispute Resolution) and Section XXI (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is upheld, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XXI.

41. All plans, reports, and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event EPA approves or modifies a portion of a plan, report, or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

### XIII. PROJECT COORDINATORS

42. Within ninety (90) days of lodging this Consent Decree, Settling Defendants will notify EPA and the State, in writing, of

the name, address, and telephone number of their Supervisory Contractor. Within ninety (90) days of the lodging of this Consent Decree, Settling Defendants, the State and EPA will notify each other, in writing, of the name, address and telephone number of their respective designated Project Coordinators and Alternate Project Coordinators. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other parties at least five (5) working days before the changes occur, unless impracticable, but in no event later than the actual day the change is made. The Settling Defendants' Project Coordinator, who may be an employee of the Supervisory Contractor, shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the Work. The Settling Defendants' Project Coordinator shall not be an attorney for any of the Defendants in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities.

43. Plaintiffs may designate other representatives, including, but not limited to, EPA and State employees, and federal and State contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager (RPM) and an On-Scene Coordinator (OSC)

by the National Contingency Plan, 40 C.F.R. Part 300. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the National Contingency Plan, to halt any Work required by this Consent Decree and to take any necessary response action when she/he determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

44. EPA's Project Coordinator and the Settling Defendants' Project Coordinator will meet at the request of either project coordinator.

#### XIV. ASSURANCE OF ABILITY TO COMPLETE WORK

45. Within thirty (30) days of entry of this Consent Decree, Settling Defendants shall establish and maintain financial security in the amount of \$35 million in one or more of the following forms:

(a) A surety bond guaranteeing performance of the Work;  
or

(b) One or more irrevocable letters of credit equalling the total estimated cost of the Work; or

(c) A trust fund; or

(d) A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with at least one of the Settling Defendants; and



(e) A demonstration that one or more of the Settling Defendants satisfy the requirements of 40 C.F.R. Part 264.143(f).

46. If the Settling Defendants seek to demonstrate the ability to complete the Work through a guarantee by a third party pursuant to Paragraph 45(d) of this Consent Decree, Settling Defendants shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. Part 264.143(f). If Settling Defendants seek to demonstrate their ability to complete the Work by means of the financial test and the corporate guarantee pursuant to Paragraph 45(d) or (e), they shall resubmit sworn statements conveying the information required by 40 C.F.R. Part 264.143(f) annually, on the anniversary of the effective date of this Consent Decree. In the event that EPA, after a reasonable opportunity for review and comment by the State, determines at any time that the financial assurances provided pursuant to this Section are inadequate, Settling Defendants shall, within 30 days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 45 of this Consent Decree. Settling Defendants' inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Consent Decree.

#### XV. CERTIFICATION OF COMPLETION

##### 47. Completion of the Remedial Action

a. Within ninety (90) days after Settling Defendants conclude that the Remedial Action has been fully performed and

the Performance Standards have been attained, Settling Defendants shall schedule and conduct a pre-certification inspection to be attended by Settling Defendants, and EPA and the State. If, after the pre-certification inspection, the Settling Defendants still believe that the Remedial Action has been fully performed and the Performance Standards have been attained, they shall submit a written report requesting certification to EPA for approval, with a copy to the State, pursuant to Section XII (Submissions Requiring Agency Approval) within thirty (30) days of the inspection. In the report, a registered professional engineer and the Settling Defendants' Project Coordinator shall state that the Remedial Action has been completed in full satisfaction of the requirements of this Consent Decree. The written report shall include as-built drawings signed and stamped by a professional engineer. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If, after completion of the pre-certification inspection and receipt and review of the written report, EPA, after reasonable opportunity to review and comment by the State, determines that the Remedial Action or any portion thereof has not been completed

in accordance with this Consent Decree or that the Performance Standards have not been achieved, EPA will notify Settling Defendants in writing of the activities that must be undertaken to complete the Remedial Action and achieve the Performance Standards. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require the Settling Defendants to submit a schedule to EPA for approval pursuant to Section XII (Submissions Requiring Agency Approval). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established pursuant to this Paragraph, subject to their right to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution).

b. If EPA concludes, based on the initial or any subsequent report requesting Certification of Completion and after a reasonable opportunity for review and comment by the State, that the Remedial Action has been fully performed in accordance with this Consent Decree and that the Performance Standards have been achieved, EPA will so certify in writing to Settling Defendants. This certification shall constitute the Certification of Completion of the Remedial Action for purposes of this Consent Decree, including, but not limited to, Section XXIII (Covenants Not to Sue Settling Defendants). Certification of Completion of the Remedial Action shall not affect Settling Defendants' obligations under this Consent Decree. Any

Certification of Completion of the Remedial Action must be in writing, signed by the Director of the Emergency and Remedial Response Division, EPA, Region II and must specifically identify this Consent Decree and the Section and Paragraph in this Consent Decree pursuant to which the Certification of Completion of the Remedial Action is being provided.

48. Completion of the Work

a. Within ninety (90) days after Settling Defendants conclude that all phases of the Work (including O & M), have been fully performed, Settling Defendants shall schedule and conduct a pre-certification inspection to be attended by Settling Defendants, EPA, and the State. If, after the pre-certification inspection, the Settling Defendants still believe that the Work has been fully performed, Settling Defendants shall submit a written report by a registered professional engineer stating that the Work has been completed in full satisfaction of the requirements of this Consent Decree. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or the Settling Defendants' Project Coordinator:

"To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If, after review of the written report, EPA, after reasonable opportunity to review and comment by the State,

determines that any portion of the Work has not been completed in accordance with this Consent Decree, EPA will notify Settling Defendants in writing of the activities that must be undertaken to complete the Work. EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require the Settling Defendants to submit a schedule to EPA for approval pursuant to Section XII (Submissions Requiring Agency Approval). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established therein, subject to their right to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution).

b. If EPA concludes, based on the initial or any subsequent request for Certification of Completion by Settling Defendants and after a reasonable opportunity for review and comment by the State, that the Work has been fully performed in accordance with this Consent Decree, EPA will so notify the Settling Defendants in writing. Any Certification of Completion of the Work must be in writing, signed by the Director of Emergency and Remedial Response Division, EPA, Region II, and must specifically identify this Consent Decree and the Section and Paragraph in this Consent Decree pursuant to which the Certification is being provided.

#### XVI. EMERGENCY RESPONSE

49. In the event of any action or occurrence during the performance of the Work which causes or threatens a release of

Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Defendants shall, subject to Paragraph 50, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall immediately notify the EPA's Project Coordinator, or, if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these persons is available, the Settling Defendants shall notify the Emergency and Remedial Response Division, Region II, EPA. Settling Defendants shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of the Health and Safety Plans, the Contingency Plans, and any other applicable plans or documents developed pursuant to the SOW. In the event that Settling Defendants fail to take appropriate response action as required by this Section, and EPA or, as appropriate, the State takes such action instead, Settling Defendants shall reimburse EPA and the State all costs of the response action not inconsistent with the NCP pursuant to Section XVII (Reimbursement of Response Costs).

50. Nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States, or the State, to take, direct, or order all appropriate action or to seek an order from the Court to protect human health and the environment or to prevent, abate, respond to, or minimize

an actual or threatened release of Waste Material on, at, or from the Site.

#### XVII. REIMBURSEMENT OF RESPONSE COSTS

51. Within thirty (30) days of the effective date of this Consent Decree, Defendants shall:

a. Pay to the United States \$ 1,750,000.00 in reimbursement of Past Response Costs, by Electronic Funds Transfer ("EFT" or wire transfer) to the U.S. Department of Justice lockbox bank, referencing the CERCLA ID Number NJD 980-505-762; DOJ Case Number 90-11-2-470. Payment shall be made in accordance with instructions provided by the United States to the Defendants upon execution of the Consent Decree. Any EFTs received at the U.S. D.O.J. lockbox bank after 4:00 P.M. (Eastern Time) will be credited on the next business day.

b. Pay to the State \$300,000.00 in the form of a certified check or checks made payable to Treasurer, State of New Jersey c/o George Smajda, Chief, Special Investigations Unit, Department of Law and Public Safety, in reimbursement of Past Response Costs incurred by the State. The Defendants shall send the certified check(s) to the Treasurer, as set forth in the preceding sentence, Division of Law, CN 093, Trenton, New Jersey 08625.

52. Settling Defendants shall reimburse the United States for all U.S. Supervisory Costs not inconsistent with the National Contingency Plan incurred by the United States up to a limit of \$250,000.00. Settling Defendants shall also reimburse the United

States for any U.S. Future Response Costs Other than U.S. Supervisory Costs incurred not inconsistent with the National Contingency Plan. The United States will periodically send Settling Defendants billings for such costs. These billings will be accompanied by a printout of cost data in EPA's financial management system and by a calculation of EPA's indirect costs. Settling Defendants shall reimburse the State for all Future Response Costs not inconsistent with the National Contingency Plan incurred by the State. The State will periodically send Settling Defendants a bill requiring payment for such costs. Settling Defendants shall make all payments within thirty (30) days of Settling Defendants' receipt of each bill requiring payment, except as otherwise provided in Paragraph 53.

a. The Settling Defendants shall make all payments to EPA required by this Paragraph in the form of a certified check or checks made payable to "EPA Hazardous Substance Superfund" and referencing CERCLA Number NJD 980-505-762 and DOJ Case Number 90-11-2-470. The Settling Defendants shall forward the certified check(s) to: EPA Region II; Attention: Superfund Accounting; P.O. Box 360188M; Pittsburgh, Pennsylvania 15251.

b. The Settling Defendants shall make all payments to the State required by this paragraph in the form of a certified check or checks made payable to The Treasurer, State of New Jersey. The Settling Defendants shall forward the certified check(s) to: Edward Stankiewicz, Bureau of Revenues, New Jersey



Department of Environmental Protection, CN 417, Trenton, New Jersey, 08625.

c. The Settling Defendants also shall send copies of the check(s) required by this paragraph to the United States and the State as specified in Section XXVIII (Notices and Submissions).

53. Settling Defendants may contest payment of any Future Response Costs under Paragraph 52 if they determine that the United States or the State has made an accounting error or if they allege that a cost item that is included represents costs that are inconsistent with the NCP. Such objection shall be made in writing within thirty (30) days of receipt of the bill and must be sent to the United States (if the United States' accounting is being disputed) or to the State (if the State's accounting is being disputed) pursuant to Section XXVIII (Notices and Submissions). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, the Settling Defendants shall within the thirty (30) day period pay all uncontested Future Response Costs to the United States or the State in the manner described in Paragraph 52. Simultaneously, the Settling Defendants shall establish an interest bearing escrow account in a federally-insured bank duly chartered in the State of New Jersey and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. The Settling Defendants shall send to the United States, as provided in

Section XXVIII (Notices and Submissions), and the State a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, the Settling Defendants shall initiate the Dispute Resolution procedures in Section XX (Dispute Resolution). If the United States or the State prevails in the dispute, within five (5) days of the resolution of the dispute, the Settling Defendants shall pay the sums due (with accrued interest) to the United States or the State, if State costs are disputed, in the manner described in Paragraph 52. If the Settling Defendants prevail concerning any aspect of the contested costs, the Settling Defendants shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to the United States or the State, if State costs are disputed in the manner described in Paragraph 52; Settling Defendants shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XX (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding the Settling Defendants' obligation to reimburse the United States and the State for their Future Response Costs.

54. In the event that the payments required of the Defendants by Paragraph 51 are not made within thirty (30) days of the effective date of this Consent Decree or the payments required by Paragraph 52 are not made within thirty (30) days of the Settling Defendants' receipt of the bill, the Defendants or the Settling Defendants shall pay interest on the unpaid balance at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607. The interest to be paid on Past Response Costs shall begin to accrue on the effective date of the Consent Decree. The interest on Future Response Costs shall begin to accrue on the date of the Settling Defendants' receipt of the bill. Interest shall accrue at the rate specified through the date of the Defendants' or the Settling Defendant's payment. Payments of interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of Defendants' or Settling Defendants' failure to make timely payments under this Section.

#### XVIII. INDEMNIFICATION AND INSURANCE

55. The United States and the State do not assume any liability by entering into this agreement or by virtue of any designation of Settling Defendants as EPA's authorized representatives under Section 104(a) of CERCLA. Settling Defendants shall indemnify, save and hold harmless the United States, the State, and their officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account

of, acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of Settling Defendants as EPA's authorized representatives under Section 104(e) of CERCLA. Further, the Settling Defendants agree to pay the United States and the State all costs they incur including, but not limited to, attorneys fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States based on acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree. Neither the United States nor the State shall be held out as a party to any contract entered into by or on behalf of Settling Defendants in carrying out activities pursuant to this Consent Decree. Neither the Settling Defendants nor any such contractor shall be considered an agent of the United States or the State.

56. Settling Defendants waive all claims against the United States and the State for damages or reimbursement or for set-off of any payments made or to be made to the United States, or the State, arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and

any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Settling Defendants shall indemnify and hold harmless the United States and the State with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

57. No later than fifteen (15) days before commencing any on-site Work, Settling Defendants shall secure, and shall maintain until the first anniversary of EPA's Certification of Completion of the Remedial Action pursuant to Paragraph 47.b. of Section XV (Certification of Completion) comprehensive general liability insurance with limits of ten (10) million dollars and automobile insurance with limits of one (1) and three (3) million dollars, naming as additional insured the United States and the State. In addition, for the duration of this Consent Decree, Settling Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Settling Defendants in furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, Settling Defendants shall provide to EPA and the State certificates of such insurance and a copy of each insurance policy. Settling

Defendants shall resubmit such certificates and copies of policies each year on the anniversary of the effective date of this Consent Decree. If Settling Defendants demonstrate by evidence satisfactory to EPA and the State that any contractor or subcontractor maintains insurance equivalent to that described in this paragraph, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Defendants need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

#### XIX. FORCE MAJEURE

58. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of the Settling Defendants or of any entity controlled by Settling Defendants, including, but not limited to, their contractors and subcontractors, that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendants' best efforts to fulfill the obligation. The requirement that the Settling Defendants exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (1) as it is occurring and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent possible. "Force Majeure" does not include financial inability to complete the Work or a failure to attain the Performance Standards.

59. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, the Settling Defendants shall notify orally EPA's Project Coordinator or, in his or her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of the Emergency and Remedial Response Division, EPA Region, II, within either forty-eight (48) hours (or seventy-two (72) hours when the event falls on a weekend and the following Monday is a federal holiday) of when Settling Defendants first knew or should have known that the event might cause a delay. Within five (5) days thereafter, Settling Defendants shall provide in writing to EPA and the State an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; the Settling Defendants' rationale for attributing such delay to a force majeure event if they intend to assert such a claim; and a statement as to whether, in the opinion of the Settling Defendants, such event may cause or contribute to an endangerment to public health, welfare or the environment. The Settling Defendants shall include with any notice all available documentation supporting their claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude Settling Defendants

from asserting any claim of force majeure for that event. Settling Defendants shall be deemed to have notice of any circumstance of which their contractors or subcontractors had or should have had notice.

60. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA, after a reasonable opportunity for review and comment by the State, for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. If EPA, after a reasonable opportunity for review and comment by the State, does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify the Settling Defendants in writing of its decision. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay is attributable to a force majeure event, EPA will notify the Settling Defendants in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

61. If the Settling Defendants elect to invoke the dispute resolution procedures set forth in Section XX (Dispute Resolution), they shall do so no later than fifteen (15) days



after receipt of EPA's notice. In any such proceeding, Settling Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Defendants complied with the requirements of Paragraphs 58 and 59, above. If Settling Defendants carry this burden, the delay at issue shall be deemed not to be a violation by Settling Defendants of the affected obligation of this Consent Decree identified to EPA and the Court.

#### XX. DISPUTE RESOLUTION

62. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes with Settling Defendants arising under or with respect to this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of the Defendants that have not been disputed in accordance with this Section.

63. Any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed twenty (20) days from the time the dispute arises, unless it is modified by

written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

64. a. In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless, within ten (10) days after the conclusion of the informal negotiation period, Settling Defendants invoke the formal dispute resolution procedures of this Section by serving on the United States and the State a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis or opinion supporting that position and any supporting documentation relied upon by the Settling Defendants. The Statement of Position shall specify the Settling Defendants' position as to whether formal dispute resolution should proceed under paragraph 65 or 66.

b. Within fourteen (14) days after receipt of Settling Defendants' Statement of Position, EPA will serve on Settling Defendants its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 65 or 66.

c. If there is disagreement between EPA and the Settling Defendants as to whether dispute resolution should

proceed under Paragraph 65 or 66, the parties to the dispute shall follow the procedures set forth in the paragraph determined by EPA to be applicable. However, if the Settling Defendants ultimately appeal to the court to resolve the dispute, the Court shall determine which paragraph is applicable in accordance with the standards of applicability set forth in Paragraphs 65 and 66.

65. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation: (1) the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and (2) the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendants regarding the validity of the ROD's provisions, as explained and clarified by the ESD.

a. An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this Paragraph. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

b. The Director of the Emergency and Remedial Response Division, EPA, Region, II, will issue a final administrative decision resolving the dispute based on the administrative record described in Paragraph 65.a. This decision shall be binding upon the Settling Defendants, subject only to the right to seek judicial review pursuant to Paragraph 65.c. and d.

c. Any administrative decision made by EPA pursuant to Paragraph 65.b. shall be reviewable by this Court, provided that a notice of judicial appeal is filed by the Settling Defendants with the Court and served on all Parties within ten (10) days of receipt of EPA's decision. The notice of judicial appeal shall include a description of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Settling Defendants' notice of judicial appeal.

d. In proceedings on any dispute governed by this Paragraph, Settling Defendants shall have the burden of demonstrating that the decision of the Director of the Emergency and Remedial Response Division is arbitrary and capricious or otherwise not in accordance with law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to Paragraphs 65.a.

66. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this Paragraph.

a. Following receipt of Settling Defendants' Statement of Position submitted pursuant to Paragraph 64, the Director of the Emergency and Remedial Response Division, EPA Region II, will issue a final decision resolving the dispute. The Emergency and Remedial Response Division Director's decision shall be binding on the Settling Defendants unless, within 10 days of receipt of the decision, the Settling Defendants file with the Court and serve on the parties a notice of judicial appeal setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of the Consent Decree. The United States may file a response to Settling Defendants' notice of judicial appeal.

b. Notwithstanding Paragraph M of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this Paragraph shall be governed by applicable provisions of law.

67. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or affect in any way any obligation of the Settling Defendants under this Consent

Decree not directly in dispute, unless EPA agrees or the Court orders otherwise. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Paragraph 76. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that the Settling Defendants do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XXI (Stipulated Penalties).

#### XXI. STIPULATED PENALTIES

68. Defendants shall be liable for stipulated penalties in the amounts set forth below for failure to pay EPA costs or interest in accordance with Section XVII (Reimbursement of Response Costs):

<u>Period of Noncompliance</u>	<u>Penalty per Violation Per Day</u>
1st through 7th day	\$2,000
8th through 14th day	\$4,000
15th through 30th day	\$7,000
31st through 59th day	\$10,000
60th and beyond	\$12,500

69. Settling Defendants shall be liable for stipulated penalties in the amounts set forth in Paragraphs 70 and 71 to the United States for failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XIX (Force Majeure). "Compliance" by Settling Defendants shall include completion of the activities under this Consent Decree or any work plan or other plan approved under this Consent Decree

identified below in accordance with all applicable requirements of law, this Consent Decree, the SOW, and any plans or other documents approved by EPA pursuant to this Consent Decree and within the specified time schedules established by and approved under this Consent Decree and the SOW.

70. a. The following stipulated penalties shall be payable per violation per day to the United States by the Settling Defendants for any noncompliance relating to Remedial Action of the type identified in Paragraph 69, Subparagraph b., or any noncompliance not specifically identified in Paragraphs 70-71 of this Decree:

<u>Period of Noncompliance</u>	<u>Penalty per Violation Per Day</u>
1st through 7th day	\$ 2,500
8th through 14th day	\$ 4,500
15th through 30th day	\$ 7,000
31st through 59th day	\$10,500
60th and beyond	\$13,000

b. i. failure to meet any deadlines for initiating any of the Work to be performed by Settling Defendants pursuant to Section VI (Performance of the Work by Settling Defendants), VII (Additional Response Actions), VIII (U.S. EPA Periodic Review), and IX Quality Assurance, Sampling and Data Analysis of this Consent Decree; or

ii. failure to complete any of the Work to be performed by the Settling Defendants pursuant to Sections VI (Performance of the Work by Settling Defendants), VII (Additional Response Actions), VIII (U.S. EPA Periodic Review), and IX

(Quality Assurance, Sampling and Data Analysis) of this Consent Decree; or

iii. failure to meet any deadlines for any Work to be performed pursuant to Section D. of the SOW.

c. The following stipulated penalties shall be payable per violation per day to the United States by the Settling Defendants for any noncompliance identified in Paragraph 69, Subparagraph d., below:

<u>Period of Noncompliance</u>	<u>Penalty per Violation Per Day</u>
1st through 7th day	\$ 2,000
8th through 14th day	\$ 4,000
15th through 30th day	\$ 7,000
31st through 59th day	\$10,000
60th and beyond	\$12,500

d. i. failure to submit the name of the Project Coordinator to EPA in accordance with Section XIII (Project Coordinators) of this Consent Decree; or

ii. failure to provide financial assurance in accordance with Section XIV (Assurance of Ability to Complete Work) of this Consent Decree; or

iii. failure to meet the requirements of Section XVI (Emergency Response) of this Consent Decree; or

iv. failure to pay EPA stipulated penalties or interest required hereunder; or

v. failure to provide indemnification and insurance in accordance with Section XVIII (Indemnification and Insurance) of this Consent Decree; or



vi. failure to meet any deadlines for submission and, if necessary, revision and resubmission, of any of the following documents:

- (1) Work Plan submitted by Settling Defendants and approved by EPA; or
- (2) Site Management Plan for Remedial Design; or
- (3) Remedial Design Work Plan; or
- (4) Design Report; or
- (5) Pre-Final Design Report; or
- (6) Final Design Report; or
- (7) Site Management Plan for Remedial Construction; or
- (8) Operation and Maintenance Plan;
- (9) Certification of Completion and Final Report for Remedial Construction; or
- (10) the Post-Remediation Ground Water and River Monitoring Plan.

71. The following stipulated penalties shall be payable per violation per day to the United States by the Settling Defendants for (a) non-compliance of the type set forth in Paragraph 69 b. that are not subject to Paragraph 69 a.; (b) failure to meet deadlines for submission and, if necessary, revision and resubmission, of (i) Certification of Completion and Final Report for Operation and Maintenance and (ii) Certification of Completion and Final Report for Post-Remediation Monitoring Program; and (c) failure to submit timely or adequate reports or other written documents pursuant to Section XI of this Consent Decree:

Period of Noncompliance

Penalty per Violation Per Day

1st through 7th day	\$ 500
8th through 14th day	\$ 750
15th through 30th day	\$ 1,000
31st through 59th day	\$ 2,000
60th and beyond	\$ 3,000

72. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 88 of Section XXIII (Covenants Not to Sue Settling Defendants), Settling Defendants shall be liable for a stipulated penalty in the amount of \$25,000.

73. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

74. Except with respect to the obligations set forth in Paragraph 51, following EPA's determination that Settling Defendants have failed to comply with a requirement of this Consent Decree, EPA may give Settling Defendants written notification of the same and describe the noncompliance. EPA will send the Settling Defendants a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified the Settling Defendants of a violation.

75. Except with respect to the obligation set forth in Paragraph 51, all penalties owed to the United States under this

section shall be due and payable within thirty (30) days of the Settling Defendants' receipt from EPA of a demand for payment of the penalties, unless Settling Defendants invoke the Dispute Resolution procedures under Section XX (Dispute Resolution). All payments under this Section shall be paid by certified check made payable to "EPA Hazardous Substances Superfund," shall be mailed to the address specified in Paragraph 52 of this Decree, and shall reference CERCLA Number NJD 980-505-762 and DOJ Case Number 90-11-2-470. Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to the United States as provided in Section XXVIII (Notices and Submissions).

76. The payment of penalties shall not alter in any way Settling Defendants' obligation to complete the performance of the Work required under this Consent Decree.

77. Penalties owed by Settling Defendants shall continue to accrue as provided in Paragraph 73 during any dispute resolution period, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owing shall be paid to EPA within fifteen (15) days of the agreement or the receipt of EPA's decision or order;

b. If the dispute is appealed to this Court and the United States prevails in whole or in part, Settling Defendants shall pay all accrued penalties determined by the Court to be

owed to EPA within sixty (60) days of receipt of the Court's decision or order, except as provided in Subparagraph c below;

c. If the District Court's decision is appealed by any Party, Settling Defendants shall pay all accrued penalties determined by the District Court to be owing to the United States into an interest-bearing escrow account within sixty (60) days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every sixty (60) days. Within fifteen (15) days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA or to Settling Defendants to the extent that they prevail.

78. a. If Defendants fail to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as interest. Defendants shall pay interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 75 at the rate established pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607.

b. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States or the State to seek any other remedies or sanctions available by virtue of Defendants' violation of this Decree or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Section 122(1) of CERCLA.

79. No payments made under this Section shall be tax deductible for Federal or State tax purposes.

XXII. COVENANTS NOT TO SUE DE MINIMIS SETTling DEFENDANTS

80. Subject to the Reservation of Rights in Paragraphs 81 and 82 and the certification requirements of Paragraphs 83, the United States and State covenant not to sue or take any other civil or administrative action against the De Minimis Settling Defendants pursuant to Sections 106 and 107(a) of CERCLA and/or the New Jersey Spill Compensation and Control Act relating to the Site. These covenants not to sue for present and potential future liability shall take effect as to each De Minimis Settling Defendant after certification by the Settling Non-Owner Defendants to the United States and State that the De Minimis Settling Defendants have made timely and full payment pursuant to Section XVII of this Decree. These covenants not to sue extend only to the De Minimis Settling Defendants and do not extend to any other person.

81. Reservations of Rights as to De Minimis Settling Defendants. Nothing in this Consent decree is intended nor shall it be construed as a release or a covenant not to sue for any claim or cause of action, administrative, or judicial, civil or criminal, past or future, in law or in equity, which the United States or the State may have against any of the De Minimis Settling Defendants for:

a. any liability as a result of a failure to make the payments required by Section XVII of this decree;

b. criminal liability;

c. liability arising from the past, present, or future disposal, release, or threat of release of any Waste Material outside of the Site and not attributable to the Site;

d. liability for damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss;

e. liability for response costs that have been or may be incurred by natural resources trustees--including, without limitation, the United States Department of the Interior, the National Oceanic and Atmospheric Administration, and the New Jersey Commissioner for Environmental Protection and Energy, acting as natural resource trustee for the State--which have, or may in the future, spend funds relating to the Site;

f. any matter not specifically provided for in Paragraph 80.

82. Nothing in this Consent Decree constitutes a covenant not to sue or to take action or otherwise limits the ability of the United States or State to seek or obtain further relief from each De Minimis Settling Defendant, and the covenant not to sue in Paragraph 80 of this Section is null and void if information not currently known to the United States is discovered which indicates that the De Minimis Settling Defendant contributed hazardous substances to the Site greater than 1% of the total volume of hazardous substances found at the Site or its hazardous substances contributed to the Site were more toxic or of greater

hazardous effect than the other hazardous substances found at the Site.

83. De Minimis Settling Defendants' Certification. By signing this Consent decree, each De Minimis Settling Defendant certifies to the best of its knowledge and belief, the following:

(a). The De Minimis Settling Defendant has made reasonable inquiry to gather all information which relates in any way to its ownership, operation, generation, treatment, transportation, storage or disposal of hazardous substances at or in connection with the Site, and has provided to the United States all such information, either directly through the submission of the Certification referred to in Paragraph 82 or indirectly by others on its behalf, as provided in Protective Order No. 2 entered by Magistrate Hedges' on October 25, 1993, and

(b) The information described in Paragraph 83(a) and in the Certification are true and correct with respect to the amount of waste the De Minimis Settling Defendant may have shipped to the Site and with respect to the toxic or other hazardous effects of such waste.

#### XXIII. COVENANTS NOT TO SUE SETTLING DEFENDANTS

84. a. In consideration of the actions that will be performed and the payments that will be made by the Settling Defendants under the terms of the Consent Decree, and except as specifically provided in Paragraphs 85, 86, and 88 of this Section, the United States covenants not to sue or to take

administrative action against Settling Defendants pursuant to Sections 106 and 107(a) of CERCLA relating to the Site. Except with respect to future liability, these covenants not to sue shall take effect upon the receipt by the United States and the State of the payment required by Paragraph 51 of Section XVII (Reimbursement of Response Costs). With respect to future liability, these covenants not to sue shall take effect upon Certification of Completion of Remedial Action for the Site by EPA pursuant to Paragraph 47.b. of Section XV (Certification of Completion). These covenants not to sue are conditioned upon the complete and satisfactory performance by Settling Defendants of their obligations under this Consent Decree. These covenants not to sue extend only to the Settling Defendants and do not extend to any other person.

b. In consideration of the actions that will be performed and the payments that will be made by the Settling Defendants under the terms of the Consent Decree, and except as specifically provided in Paragraphs 85, 86, and 88 of this Section, the State covenants not to sue or take administrative action against Settling Defendants pursuant to N.J.S.A. 58:10-23 et seq. and the regulations promulgated thereunder, specifically N.J.A.C. 7:1E-1.1 et seq., N.J.S.A. 13:1E-1 et seq., N.J.S.A. 58:10A-1 et seq., or Section 107(a) of CERCLA relating to the Site. Except with respect to future liability, these covenants not to sue shall take effect upon the receipt of the payments required by Paragraph 51 of Section XVII (Reimbursement of Response Costs).



With respect to future liability, these covenants not to sue shall take effect upon Certification of Completion of Remedial Action by EPA pursuant to Paragraph 47.b of Section XV (Certification of Completion). These covenants not to sue are conditioned upon the complete and satisfactory performance by Settling Defendants of their obligations under this Consent Decree. These covenants not to sue extend only to the Settling Defendants and do not extend to any other person.

85. Pre-certification reservations.

a. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order, seeking to compel Settling Defendants (1) to perform further response actions relating to the Site or (2) to reimburse the United States for additional costs of response actions if, prior to EPA's Certification of Completion of the Remedial Action:

(i) conditions at the Site, previously unknown to EPA are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part,

and EPA determines, after a reasonable opportunity for review and comment by the State, based on these previously unknown conditions or this information together with any other relevant information, that the Remedial Action is not protective of human health or the environment. An action or proceeding based on

information that is received or conditions that are discovered prior to Certification of Completion of the Remedial Action may be instituted at any time, including after Certification of Completion of the Remedial Action for the Site pursuant to Paragraph 47.b.

b. Notwithstanding any other provision of this Consent Decree, the State reserves, pursuant to its authorities under Section 107 of CERCLA, the Spill Act and any other applicable State statute, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order, seeking to compel Settling Defendants

(1) to perform further response actions relating to the Site to the extent that EPA determines, after a reasonable opportunity for review and comment by the State, that such actions will not significantly delay or be inconsistent with the Remedial Action, or

(2) to reimburse the State for additional costs of response actions to the extent that EPA determines, after a reasonable opportunity for review and comment by the State, that such actions will not significantly delay or be inconsistent with the Remedial Action, if, prior to EPA's certification of completion of the Remedial Action:

(i) conditions at the Site, previously unknown to EPA, are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part, and EPA determines, after a reasonable opportunity for review and comment by the State, based on these previously unknown conditions or this information together with any other relevant information, that the Remedial Action is not protective of human health or the environment.

86. Post-certification reservations.

a. Notwithstanding any other provision of this Consent Decree, the United States reserves, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order, seeking to compel Settling Defendants (1) to perform further response actions at the Site or (2) to reimburse the United States for additional costs of response actions if, subsequent to EPA's Certification of Completion of the Remedial Action:

(i) conditions at the Site, previously unknown to EPA are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part,

and EPA determines, after a reasonable opportunity for review and comment by the State, based on these previously unknown conditions or this information together with any other relevant information, that the Remedial Action is not protective of human health or the environment.

b. Notwithstanding any other provision of this Consent Decree, the State reserves, pursuant to its authorities under Section 107 of CERCLA, the Spill Act and any other applicable State statute, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order, seeking to compel Settling Defendants

(1) to perform further response actions relating to the Site to the extent EPA determines, after a reasonable opportunity for review and comment by the State, that such actions will not be inconsistent with the Remedial Action, or

(2) to reimburse the State for additional costs of response actions to the extent EPA determines, after a reasonable opportunity for review and comment by the State, that such actions will not be inconsistent with the Remedial Action, if, subsequent to EPA's certification of completion of the Remedial Action:

(i) conditions at the Site, previously unknown to EPA, are discovered, or

(ii) information, previously unknown to EPA, is received, in whole or in part, and EPA determines, after a reasonable opportunity for review and comment by the State, based on these previously unknown conditions or this information together with any other relevant information, that the Remedial Action is not protective of human health or the environment.

87. For purposes of Paragraph 85, the information and the conditions known to EPA shall include only that information and those conditions set forth in the Record of Decision and the ESD for the Site and the administrative record supporting the Record of Decision and the ESD. For purposes of Paragraph 86, the information and the conditions known to EPA shall include only that information and those conditions set forth in the Record of Decision and the ESD, the administrative record supporting the Record of Decision and the ESD, and any information received by EPA pursuant to the requirements of this Consent Decree prior to Certification of Completion of the Remedial Action.

88. General reservations of rights. The covenants not to sue set forth above do not pertain to any matters other than those expressly specified in Paragraph 84. The United States and the State reserve, and this Consent Decree is without prejudice to, all rights against Settling Defendants with respect to all other matters, including but not limited to, the following:

(1) claims based on a failure by Settling Defendants to meet a requirement of this Consent Decree;

(2) liability arising from the past, present, or future disposal, release, or threat of release of Waste Materials outside of the Site;

(3) liability for damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction or loss;

(4) liability for response costs that have been or may be incurred by natural resources trustees -- including, without limitation, the United States Department of the Interior, the National Oceanic and Atmospheric Administration, and the New Jersey Commissioner for Environmental Protection and Energy, acting as natural resource trustee for the State -- which have, or may in the future, spend funds relating to the Site;

(5) criminal liability;

(6) liability for violations of federal or state law which occur during or after implementation of the Remedial Action; and

(7) previously incurred costs of response above the amounts reimbursed pursuant to Paragraph 51;

(8) liability for response actions selected in any future RODs addressing conditions at the Site; or

(9) liability for costs that the United States or the State will incur related to the Site but are not within the definition of Future Response Costs.

89. In the event EPA determines that Settling Defendants have failed to implement any provisions of the Work in an adequate or timely manner, EPA or the State may perform any and all portions of the Work as EPA determines necessary. Settling Defendants may invoke the procedures set forth in Section XX (Dispute Resolution) to dispute EPA's determination that the Settling Defendants failed to implement a provision of the Work in an adequate or timely manner as arbitrary and capricious or

otherwise not in accordance with law. Such dispute shall be resolved on the administrative record. Costs incurred by the United States or the State in performing the Work pursuant to this Paragraph shall be considered Future Response Costs, in the case of the State, or U.S. Future Response Costs Other than U.S. Supervisory Costs, in the case of the United States, that Settling Defendants shall pay pursuant to Section XVII (Reimbursement of Response Costs).

90. Notwithstanding any other provision of this Consent Decree, the United States and the State retain all authority and reserve all rights to take any and all response actions authorized by law.

#### XXIV. COVENANTS BY DEFENDANTS

91. a. De Minimis Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States or the State with respect to the Site or this Consent Decree, including, but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal revenue Code, 26 U.S.C. Section 9507) through CERCLA Sections 106(b)(2), 111, 112, 113 or any other provision of law, any claim against the United States or State, including any department, agency, or instrumentality of the United States or State under CERCLA Sections 107 or 113 or any other provision of law related to the Site. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of

Section 111 of CERCLA, 42 U.S.C. Section 9611, or 40 C.F.R. Part 300.700(d).

b. Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States with respect to the Site or this Consent Decree, including, but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 111, 112, 113 or any other provision of law, any claim against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113 related to the Site, or any claims arising out of response activities at the Site. However, the Settling Defendants reserve, and this Consent Decree is without prejudice to, actions against the United States based on negligent actions taken directly by the United States (not including oversight or approval of the Settling Defendants' plans or activities) that are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. Part 300.700(d).

c. Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the State with respect to the Site or this Consent Decree, including,



but not limited to, any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 111, 112, 113 or any other provision of law, any claim against the State including any department, agency or instrumentality of the State under CERCLA Sections 107 or 113 related to the Site, or any claims arising out of response activities at the Site. However, the Settling Defendants Reserve, and this Consent Decree is without prejudice to, actions against the State of New Jersey based on negligent actions taken directly by the State (not including oversight or approval of the Settling Defendants plans or activities) that are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA. The Settling Defendants also reserve actions against New Jersey Department of Transportation, New Jersey Transit and New Jersey Rail Transit, under 42 U.S.C. § 9607(a) and N.J.S.A. 13:1E et seq., 58:10-23.11 et seq., and 58:10A-1 et seq. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. Part 300.700(d).

**XXV. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION**

92. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a party to this Consent Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person

not a signatory to this decree may have under applicable law. Each of the Parties expressly reserves any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which each party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a party hereto.

93. With regard to claims for contribution against De Minimis Settling Defendants for matters addressed in this Consent Decree, the Parties hereto agree that the De Minimis Settling Defendants are entitled to such protection from contribution actions or claims as is provided by Section 122(g)(5) of CERCLA, 42 U.S.C. Section 9622(g)(5).

94. With regard to claims for contribution against Settling Defendants for matters addressed in this Consent Decree, the Parties hereto agree that the Settling Defendants are entitled to such protection from contribution actions or claims as is provided by CERCLA Section 113(f)(2), 42 U.S.C. § 9613(f)(2).

95. The Defendants agree that with respect to any suit or claim for contribution brought by them for matters related to this Consent Decree they will notify the United States and the State in writing no later than sixty (60) days prior to the initiation of such suit or claim.

96. The Defendants also agree that with respect to any suit or claim for contribution brought against them for matters related to this Consent Decree they will notify in writing the

United States and the State within ten (10) days of service of the complaint on them. In addition, Defendants shall notify the United States and the State within ten (10) days of service or receipt of any Motion for Summary Judgment and within ten (10) days of receipt of any order from a court setting a case for trial.

97. Defendants may petition the State for the right to seek treble damages in contribution pursuant to the terms set forth in Appendix H.

98. In any subsequent administrative or judicial proceeding initiated by the United States or the State for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendants shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the State in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XXIII (Covenants Not to Sue Settling Defendants ).

#### XXVI. ACCESS TO INFORMATION

99. Settling Defendants shall provide to EPA and the State, upon request, copies of all documents and information within their possession or control or that of their contractors or agents relating to activities at the Site or to the

implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Settling Defendants shall also make available to EPA and the State, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

100. a. Settling Defendants may assert business confidentiality claims covering part or all of the documents or information submitted to Plaintiffs under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA and the State, or if EPA has notified Settling Defendants that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA, the public may be given access to such documents or information without further notice to Settling Defendants.

b. The Settling Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by

federal law. If the Settling Defendants assert such a privilege in lieu of providing documents, they shall provide the Plaintiffs with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the contents of the document, record, or information; and (6) the privilege asserted by Settling Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

101. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

#### XXVII. RETENTION OF RECORDS

102. Until ten (10) years after the Settling Defendants' receipt of EPA's notification pursuant to Paragraph 48.b of Section XV (Certification of Completion of the Work), the Non-Owner Settling Defendants and the De Minimis Settling Defendants shall cause their common counsel to preserve and retain at least once complete set of all records and documents pertaining to Allocation Materials as defined by Magistrate Judge Ronald Hedges Order dated August 24, 1992. Said Order and the Order dated

October 24, 1993 shall remain as an order of the Court throughout the retention period. Each Defendant shall otherwise preserve and retain all records and documents now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or liability of any person for response actions conducted and to be conducted at the Site, regardless of any corporate retention policy to the contrary. Until ten (10) years after the Settling Defendants' receipt of EPA's notification pursuant to Paragraph 48.b of Section XV (Certification of Completion of the Work), Settling Defendants shall also instruct their contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to the performance of the Work.

103. At the conclusion of the document retention period, Defendants shall notify the United States and the State at least 90 days prior to the destruction of any such records or documents, and, upon request by the United States or the State, Defendants shall deliver any such records or documents to EPA or the State. The Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Defendants assert such a privilege, they shall provide the Plaintiffs with the following: (1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the

author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

104. Except as to "Allocation Materials" which are governed by Magistrate Hedges' Order entered in this case on August 24 1992, said Allocation Materials consisting of: 1) questionnaires and responses thereto; 2) various communications among Defendants and the Allocation Consultant; 3) information prepared by the Allocation Consultant; and 4) various drafts and the final form of an Allocation Report, each Defendant hereby certifies, individually, that it has not knowingly altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information relating to its potential liability regarding the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA and Section 3007 of RCRA.

#### XXVIII. NOTICES AND SUBMISSIONS

105. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one party to another, it shall

be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the State, and the Defendants, respectively.

As to the United States:

Chief, Environmental Enforcement Section  
Environment and Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7611  
Ben Franklin Station  
Washington, D.C. 20044  
Re: DJ # 90-11-2-470

and

Director, Emergency and Remedial Response Division  
United States Environmental Protection Agency  
Region II  
26 Federal Plaza  
New York, New York 10278

As to EPA:

Sharkey Landfill Remedial Project Manager  
United States Environmental Protection Agency  
Region II  
26 Federal Plaza  
New York, New York 10278



As to the State:

Edward Putnam  
State Project Coordinator  
Assistant Director  
Publicly Funded Site Remediation  
New Jersey Department of Environmental Protection  
and Energy  
CN 042  
Trenton, New Jersey 08625

As to Defendants:

Settling Defendants' Project Coordinator  
(the name and address of which will be supplied later)

with copies supplied to:

Donald W. Stever  
Dewey Ballantine  
1301 Avenue of the Americas  
New York, NY 10019;

and

Parsippany-Troy Hills Town Clerk  
1001 Parsippany Blvd.  
Parsippany, New Jersey 07054

#### XXIX. EFFECTIVE DATE

106. The effective date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court, except as otherwise provided herein.

#### XXX. RETENTION OF JURISDICTION

107. This Court retains jurisdiction over both the subject matter of this Consent Decree and the Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or

modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or, when appropriate, to resolve disputes in accordance with Section XX (Dispute Resolution) hereof.

#### XXXI. APPENDICES

108. The following appendices are attached to and incorporated into this Consent Decree:

"Appendix A" is the ROD and the ESD.

"Appendix B" is the SOW.

"Appendix C" is the description and/or map of the Site.

"Appendix D" is the complete list of the Non-owner Settling Defendants.

"Appendix E" is the complete list of the De Minimis Settling Defendants

"Appendix F" is the complete list of the Owner Settling Defendants.

"Appendix G" is, without limiting joint and several liability to the United States and State, a description of the agreement between the Owner Settling Defendants and the Non-Owner Settling Defendants whereby these parties agree, between themselves, to perform portions of the Work.

"Appendix H" sets forth the terms whereby Defendants may petition the State for the right to seek treble damages in contribution.

### XXXII. COMMUNITY RELATIONS

109. Settling Defendants shall propose to EPA and the State their participation in the community relations plan to be developed by EPA. EPA will determine the appropriate role for the Settling Defendants under the Plan. Settling Defendants shall also cooperate with EPA and the State in providing information regarding the Work to the public. As requested by EPA or the State, Settling Defendants shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA or the State to explain activities at or relating to the Site.

### XXXIII. MODIFICATION

110. Schedules specified in this Consent Decree for completion of the Work may be modified by agreement of EPA and the Settling Defendants. All such modifications shall be made in writing.

111. No material modifications shall be made to the SOW without written notification to and written approval of the United States, Settling Defendants, and the Court. Prior to providing its approval to any modification, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification. Modifications to the SOW that do not materially alter that document may be made by written agreement between EPA, after providing the State with a reasonable opportunity to review and comment on the proposed modification, and the Settling Defendants.

112. Nothing in this Decree shall be deemed to alter the Court's power to enforce, supervise or approve modifications to this Consent Decree.

#### XXXIV. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

113. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. Part 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. Defendants consent to the entry of this Consent Decree without further notice.

114. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

#### XXXV. SIGNATORIES/SERVICE

115. Each undersigned representative of a Defendant to this Consent Decree and the Assistant Attorney General for Environment and Natural Resources of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such party to this document.

116. Each Defendant hereby agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified the Defendants in writing that it no longer supports entry of the Consent Decree.

117. Each Defendant shall identify, on the attached signature page, the name, address and telephone number of an agent who is authorized to accept service of process by mail on behalf of that party with respect to all matters arising under or relating to this Consent Decree. Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons.

SO ORDERED THIS

1<sup>st</sup> DAY OF

December, 1976.


  
United States District Judge

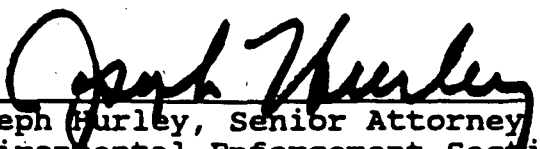
**NICHOLAS H. POLITAN, U.S.D.J.**

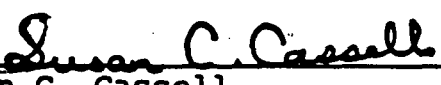
THE UNDERSIGNED PARTIES enter into this Consent Decree in the matter of United States et al. v. CDMG Realty Co., et. al., relating to the Sharkey Farms Landfill Superfund Site.

FOR THE UNITED STATES OF AMERICA

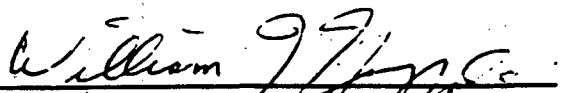
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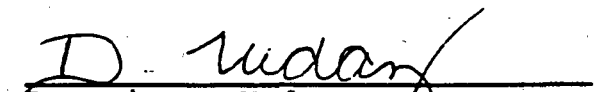
  
LOIS J. SCHIFFER  
Acting Assistant Attorney General  
Environment and Natural Resources  
Division  
U.S. Department of Justice  
Washington, D.C. 20530

  
Joseph Hurley, Senior Attorney  
Environmental Enforcement Section  
Environment and Natural Resources  
Division  
U.S. Department of Justice  
P.O. Box 7611  
Washington, D.C. 20044

  
Susan C. Cassell  
Assistant United States Attorney  
District of New Jersey  
U.S. Department of Justice  
90 Broad Street  
Newark, NJ 07102

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

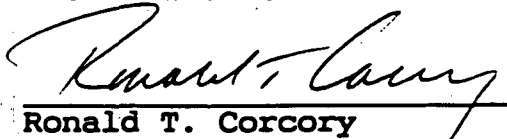
  
\_\_\_\_\_  
Jeanne M. Fox  
Regional Administrator  
Region II  
U.S. Environmental Protection  
Agency  
26 Federal Plaza  
New York, New York 10278

  
\_\_\_\_\_  
Damaris C. Urdaz  
Assistant Regional Counsel  
U.S. Environmental Protection  
Agency  
26 Federal Plaza  
New York, New York 10278

FOR THE STATE OF NEW JERSEY

Date:

6-14-94

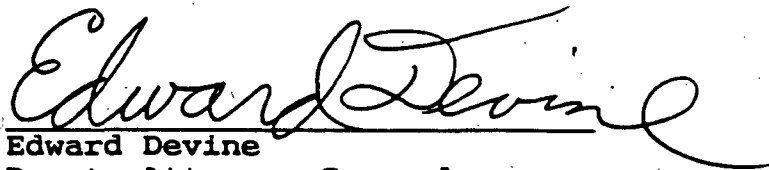
  
Ronald T. Corcory  
Assistant Director  
New Jersey Department of  
Environmental Protection and  
Energy

DEBORAH T. PORITZ  
ATTORNEY GENERAL OF NEW JERSEY

Date:

June 15, 1994

By:

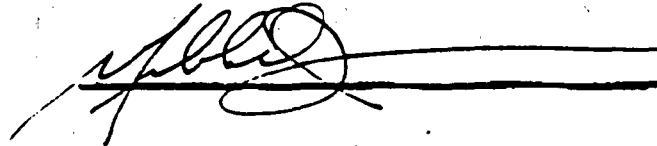
  
Edward Devine  
Deputy Attorney General



THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR NESORALWAY CORP. COMPANY, INC.

Date: 4 MARCH 1994



Agent Authorized to Accept Service on Behalf of  
Above-signed Party:

Name: Andrew J. Perel, Esq.

Title:

Address: Rosenman & Colin - 575 Madison Ave., NY, NY 10022

Tel. Number: (212) 940-940-6332

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Hoechst Celanese Corporation

Date: December 3, 1993

Christopher K. Iorio.

Christopher K. Iorio  
Assistant Corporate Controller

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: The Corporation Trust Company  
Title: \_\_\_\_\_  
Address: 28 West State Street, Trenton, NJ 08608  
Tel. Number: 609-396-9400

May only be presented if at least 85% by volume of parties on the last allocation spreadsheet are similarly committed and if Parsippany Troy Hills is also committed on terms satisfactory to our defense group or its authorized representatives.

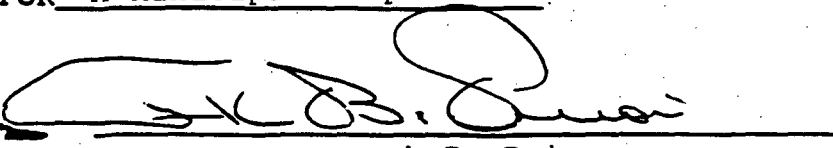
United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

-THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

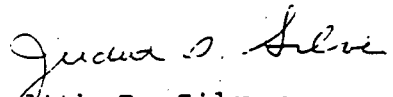
Township of Parsippany-Troy Hills  
FOR A Municipal Corporation of the State of New Jersey

Date: 3-4-94

Attest:

  
Mayor Frank B. Priore

[Name -- Please Type] 1001 Parsippany Blvd.  
[Title -- Please Type] Parsippany, NJ 070054  
[Address -- Please Type]

  
Judith I. Silver  
Township Clerk

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: [Please Type]  
Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
Tel. Number: \_\_\_\_\_

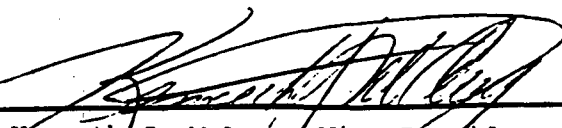
\*/ A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Leslie Controls, Inc.

Date: 12/6/93

  
Kenneth J. McAvoy, Vice President  
[Name -- Please Type]  
[Title -- Please Type]  
[Address -- Please Type]

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: [Please Type]  
Title: The Corporation Trust Company  
Address: 28 West State Street  
Tel. Number: Trenton, NJ 08608

\*/ A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v/ CDMG Realty Co., et al., relating to the Sharkey Superfund Site.

FOR ROCKLAND CHEMICAL COMPANY

Date:

March 31, 1994

  
JOHN WITTPENN

Agent Authorized to Accept Service on Behalf of Above-Signed Party:

Name: John Wittpenn

Title: President

Address: 686 Passaic Avenue, West Caldwell, New Jersey

Tel. Number: (201) 575-1322

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter  
United States v. CDMG Realty Co., et al., relating to the Sharkey  
Superfund Site.

NEW JERSEY TRANSIT CORPORATION AND  
NEW JERSEY TRANSIT BUS OPERATIONS, INC.

Date: April 4, 1994

By: Albert R. Hasbrouck, III  
Albert R. Hasbrouck, III  
Senior Director

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Mark T. Holmes  
Title: Deputy Attorney General  
Address: CN 112, Richard J. Hughes Justice Complex  
Trenton, NJ 08625-0112  
Tel. No.: 609-984-3221

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR AlliedSignal Inc.

Date: 1/14/94

F. M. Poses

Frederic M. Poses

Agent Authorized to Accept Service on Behalf of Above-signed Party:

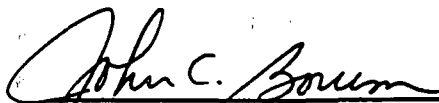
Name: David P. Cooke  
Title: Law Department  
Address: AlliedSignal Inc.  
Tel. Number: (201) 455-2817

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the ( matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR American Telephone and Telegraph Company (AT&T)

Date: 12/3/93



John C. Borum

~~Environment & Safety Engineering Vice President~~

Agent Authorized to Accept Service on Behalf of Above-  
signed Party:

Name: J. Michael Hartnett

Title: Senior Attorney

Address: 131 Morristown Road - Room B2134, Basking Ridge, NJ 07920

Tel. Number: (908) 204-8435

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page



THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Automatic Switch Company

Date: 12.1.94

  
\_\_\_\_\_  
J. H. Kluge, President

Agent Authorized to Accept Service on Behalf of Above-signed Party:


Name: Richard P. Rooney  
Title: Vice President and Corporate Secretary  
Address: 50 Hanover Road, Florham Park, N.J. 07932  
Tel. Number: (201) 966-2000

\_\_\_\_\_  
United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR BECTON DICKINSON AND COMPANY

Date: DEC. 3, 1993

  
R. P. OHL MULLER  
VICE PRESIDENT + SECRETARY

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: R. P. OHL MULLER  
Title: V. P. + SECRETARY  
Address: BECTON DICKINSON + CO, 1 BECTON DRIVE, FRANKLIN LAKES, NJ  
Tel. Number: (201) 847-7107

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

BROWNING-FERRIS INDUSTRIES OF NEW JERSEY  
FOR COMPANY, INC.

Date: March 3, 1994

Gerald R. Buzen

Agent Authorized to Accept Service on Behalf of  
Above-signed Party:

Name:

Title: The Corporation Trust Company

Address: 28 West State Street, Trenton, NJ 08608

Tel. Number: (609) 396-9400

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Chemical Waste Management, Inc. ~~XXXXXXXXXX~~  
and its subsidiary Carl Gulick, Inc.

\*/

Date: December 1, 1993



[Name -- Please Type] Richard C. Karr  
[Title -- Please Type] Remedial Project Coordinator  
[Address -- Please Type] Three Greenwood Square  
3329 Street Road  
P.O. Box 8532  
Bensalem, PA 19020-8532

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: [Please Type] Pamella Goodwin, Esq.  
Title: \_\_\_\_\_  
Address: Saul, Ewing, Remick & Saul, State Street Sq. Plaza, Suite 1104, 50 West State St.  
Tel. Number: (609) 393-0057 Trenton, NJ 08068

\*/ A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Ciba-Geigy Corporation ~~COMPANY XXXXX~~

\*/

Date:

11/22/93

*Richard Barth*  
*President*

[Name -- Please Type] Richard Barth

[Title -- Please Type] President

[Address -- Please Type] Ciba-Geigy Corporation

444 Saw Mill River Road

Ardsley, New York 105

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: [Please Type]

Title: The Prentice-Hall Corporation System, New Jersey, Inc.

Address: 150 W. State Street, Trenton, New Jersey 08608

Tel. Number: 1-800-221-0770

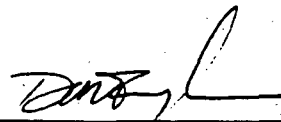
\*/ A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Curtiss-Wright Corporation

Date: 12/3/93



Dana M. Taylor, Jr.

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Dana M. Taylor, Jr.

Title: General Counsel

Address: Curtiss-Wright Corporation

~~XXXXXXXXXXXX~~ 1200 Wall Street West

Lyndhurst, N.J. 07071

Tel. Number: 201-460-8108

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR HOSOKAWA MICRON INTERNATIONAL INC.

Date: 3-4-94



William J. Brennan  
Senior Vice President - Administration  
780 Third Avenue  
New York NY 10017

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Simon H. Baker, ESO.  
Title: Vice President  
Address: 780 Third Avenue, New York, NY 10017  
Tel. Number: (212) 826-3830

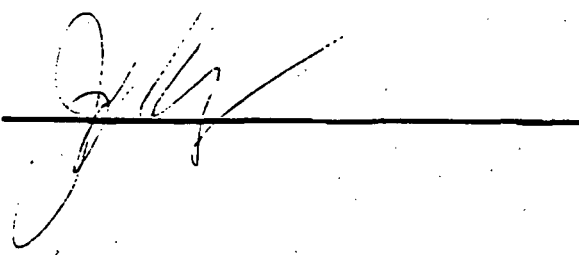
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United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR Industrial Circuits COMPANY, INC.

Date: March 4, 1994



Agent Authorized to Accept Service on Behalf of  
Above-signed Party:

Name: Risa H. Weinstock, Sr. Counsel  
Title: \_\_\_\_\_  
Address: Philips Electronics North America Corp. 100 East 42nd St.  
Tel. Number: (212) 850-5232 NY, NY 10017



THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of

United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR JOHN DUSENBURY COMPANY, INC.

Date: February 28, 1994



JOHN WILKES, President  
220 Franklin Road  
Randolph, New Jersey 07869

Agent Authorized to Accept Service on Behalf of Above-signed Party:

KELLEY DRYE & WARREN  
Attorneys for John Dusenbury Company, Inc.  
5 Sylvan Way  
Parsippany, New Jersey 07054  
(201) 539-0099

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR KDI/triangle Electronics, Inc.

Date: 12/6/93

Paul E. Finer, President

Paul E. Finer, President

Agent Authorized to Accept Service on Behalf of Above-signed Party:

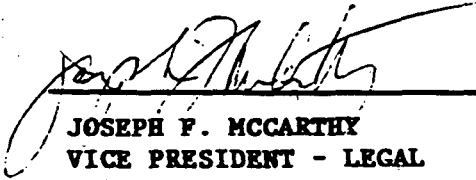
Name: The Corporation Trust Company  
Title: \_\_\_\_\_  
Address: 28 West State Street, Trenton, NJ 08608  
Tel. Number: 609 - 396 - 9400

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR K-H CORPORATION ON BEHALF OF MAGOR CAR

Date: DECEMBER, 1993

  
JOSEPH F. MCCARTHY  
VICE PRESIDENT - LEGAL  
38481 HURON RIVER DR.  
ROMULUS, MI 48174

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: LEONARD F. CHARLA, ESQ.  
Title: BUTZEL LONG  
Address: 150 W. JEFFERSON, SUITE 900, DETROIT, MI 48226  
Tel. Number: 313-225-7016

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site

FOR Kidde Industries, ~~COMPANY~~, INC.

Date: 3 / 3 / 94

George H. MacLean

George H. MacLean  
Vice President and Associate  
General Counsel  
99 Wood Avenue So.  
Iselin, NJ 08830

Agent Authorized to Accept Service on Behalf of  
Above-Signed Party:


Name: Eric J. Nemeth, Esq.  
Title: Bressler, Amery & Ross - Counsel  
Address: 325 Columbia Turnpike, Florham Park, NJ 07932  
Tel. Number: 201- 514- 1200

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR METEM CORPORATION COMPANY, INC.

\*/

Date: February 7, 1994



duVal Goldthwaite  
Chief Executive Officer  
700 Parsippany Road  
Parsippany, NJ 07055

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: [Please Type]  
Title: LYNN R. GOLDTHWAITE, Esq., Attorney for METEM CORPORATION  
Address: 100 Rte. 46 East, Building A, Mountain Lakes, NJ 07046  
Tel. Number: 201/402-525

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\*/ A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR NICHOLAS ENTERPRISES, INC.

Date:

3/4/94

*James M. DiStefano*  
PRESIDENT

Agent Authorized to Accept Service on Behalf of  
Above-signed Party:

Name: Gerard M. Giordano

Title: Attorney

Address: Cole, Schotz, et al., 25 Main Street, Hackensack, NJ 07601

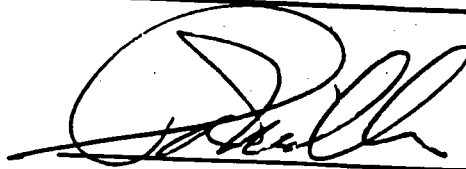
Tel. Number: (201) 489-3000

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

\*/

FOR PFIZER INC

Date: 11/24/93



PAUL S. MILLER  
Senior Vice-President and General Counsel  
235 E. 42nd Street  
New York, NY 10017

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Merrill Fliederbaum, Esq.  
Title: Assistant Corporate Counsel  
Address: Pfizer Inc, 235 E. 42nd St., New York, NY 10017  
Tel. Number: (212) 573-1430

\*/ A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Rayonier Inc. (Formerly ITT Rayonier, Inc.)

Date: 28 February 1994

By: *RMG*

Name -- Ronald M. Gross

Title -- President

Address -- 1177 Summer Street  
Stamford, CT 06904

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: William E. Markey, Jr.

Title: Director, Risk Management

Address: 1177 Summer Street, Stamford, CT 06904

Tel. Number: (203) 964-4666

\*/ A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page



THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Rowe International, Inc.

Date: 30 November 1993



Executive Vice President & Chief  
Financial Officer

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Mark E. Newell, Esq.

Title: Attorney

Address: Latham & Watkins, 1001 Pennsylvania Ave, NW, #1300, Washington

Tel. Number: 202-637-2200

DC 20004

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR SAFETY LIGHT CORPORATION, INC.

Date: \_\_\_\_\_

*Kathy D. Fishel 2/4/94*  
KATHY D FISHEL  
SECRETARY  
SAFETY LIGHT CORP.

*C. White*

CHARLES R. WHITE  
President  
4150-A Old Berwick Road  
Bloomsburg, Pa. 17815

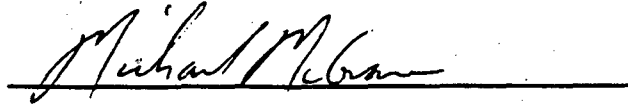
Agent Authorized to Accept Service on Behalf of  
Above-signed Party:

Name: HANNOCH WEISMAN  
Title: Attorneys  
Address: 4 Becker Farm Road, Roseland, NJ 07068  
Tel. Number: 201/535-5300

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR SANDOZ PHARMACEUTICALS CORPORATION  
AND ITS PREDECESSORS, AND THEIR  
PARENTS AND AFFILIATES UNDER COMMON  
OWNERSHIP OR CONTROL

Date: JANUARY 25, 1994



MICHAEL MCGRANE  
ASSOCIATE GENERAL COUNSEL

Agent Authorized to Accept Service on Behalf of Above-signed Party:

HERBERT J BRENNAN, ESQ.  
VICE PRESIDENT LEGAL AFFAIRS,  
SECRETARY, AND GENERAL COUNSEL  
SANDOZ PHARMACEUTICALS CORPORATION  
59 ROUTE 10  
EAST HANOVER, NJ 07936  
201-503-7500

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR SCOVILL INC

Date: 12-2-93

by [Signature]  
J SCOTT D. ROBBINS  
C.V.P.

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Charles Perry  
Title: Hunter & Williams  
Address: NationsBank Plaza, Suite 4100, 600 Peachtree St, NE  
Tel. Number: 404 588 4000 Atlanta, GA  
30308-2216

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR The Sherwin-Williams Company

Date: 12/2/93



Agent Authorized to Accept Service on Behalf of Above-signed Party:

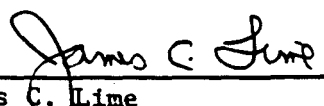
Name: Allen J. Danzig  
Title: Senior Corporate Counsel  
Address: 101 Prospect Ave., N.W., Cleve., OH 44115  
Tel. Number: (216) 566-2482

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR WARNER-LAMBERT COMPANY

Date: Nov. 24, 1993

  
James C. Lime  
Vice President, Environmental Affairs  
& Compliance

11-24-93

Agent Authorized to Accept Service on Behalf of Above-signed Party:

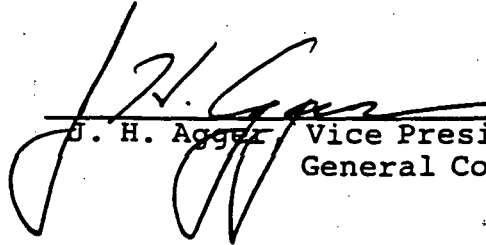
Name: Lauren A. Ferrari  
Title: Counsel, Environmental and Safety  
Address: 201 Tabor Road, Morris Plains, NJ 07950  
Tel. Number: (201) 540-4653

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Air Products and Chemicals, Inc.

Date: 2 December 1993

  
J. H. Agger Vice President  
General Counsel and Secretary

Agent Authorized to Accept Service on Behalf of Above-signed Party:


Name: Stephen S. Ferrara  
Title: Attorney  
Address: 7201 Hamilton Boulevard/Allentown, PA 18195  
Tel. Number: 215-481-7352

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR Beazer East, Inc. f/k/a Koppers Company, Inc.

Date: 12/2/93

  
Mary D. Wright  
Assistant Secretary  
436 Seventh Avenue  
Pittsburgh, PA 15219

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: The Corporation Trust Company  
Title: \_\_\_\_\_  
Address: 28 West State Street, Trenton, NJ 08608  
Tel. Number: 609-396-9400

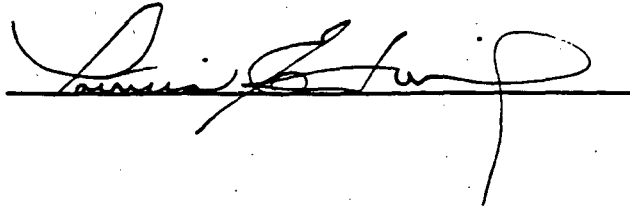
\_\_\_\_\_  
United States et. al. v. CDMG et. al.  
Consent Decree Signature Page



THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR The BOC Group, Inc. (Airco)

Date: December 3, 1993



Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Patricia E. Fleming

Title: Assistant General Counsel

Address: 575 Mountain Avenue, Murray Hill, NJ 07974

Tel. Number: 908-771-4730

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR CERAMIC MAGNETICS, INC.

Date: December 3, 1993

By:

  
Norris E. Krall, President

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Norris E. Krall

Title: President

Address: c/o Thomas and Skinner

1120 East 23rd Street

Indianapolis, Indiana 46205

Tel. Number: 317-923-2501

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR KETCHAM & McDOUGALL

Date: Nov 26, 1993

Kenneth Seelig

KENNETH SEELIG, PRESIDENT

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: John M. Simon, Esq., c/o Wolff & Samson

Title: \_\_\_\_\_

Address: 5 Becker Farm Road, Roseland, NJ 07068

Tel. Number: 201/533-6600

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR L.F. Carpenter & Company

Date: 11/24/93

Richard E. Hahn

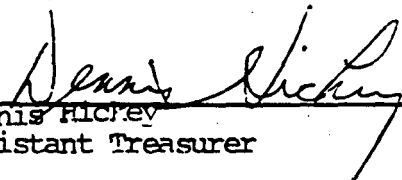
Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Richard E. Hahn  
Title: Senior Assoc. Counsel  
Address: 1361 E 9th Street, Suite 2000, Cleveland, OH 44114  
Tel. Number: (216) 552-4040

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR THE MENIFEN COMPANY

Date: January 25, 1994

  
Dennis Richey  
Assistant Treasurer

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Elizabeth McQuillan

Title: Division General Counsel, U.S. Company

Address: c/o Colgate-Palmolive Company, 300 Park Avenue, NY, NY 10022

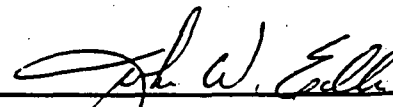
Tel. Number: 212-310-2834

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR NSK CORPORATION

Date: 12-1-93



John W. Ellis  
Assistant Treasurer  
3861 Research Park Dr  
Ann Arbor, Mi 48107

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: David J. Blosser

Title: General Counsel

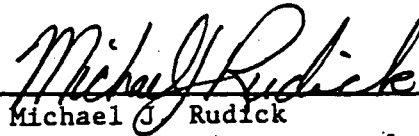
Address: 3861 Research Park Dr. P.O. Box 1507, Ann Arbor, MI

Tel. Number: (313) 761-9500 48106-1507

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR OCCIDENTAL CHEMICAL CORPORATION

Date: 11/30/93



Michael J. Rudick  
Vice President & General Counsel

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Martin B. Wasser, Esq.

Name: Phillips, Nizer, Benjamin, Krim & Ballon

Title: Counsel for Occidental Chemical Corporation

Address: 31 West 52nd Street, New York, NY 10019

Tel. Number: (212) 977-9700

United States et. al. v. CDMG et. al.  
Consent Decree Signature Page

THE UNDERSIGNED PARTY enters into this Consent Decree in the  
matter of United States v. CDMG REALTY CO., et al, relating  
to the Sharkey Superfund Site.

FOR Sika Corporation

Date: 12/1/93

St. Orlly

Agent Authorized to Accept Service on Behalf of Above-  
signed Party:

Name: Donald J. Fay, Esquire  
Title: Carlin, Maddock, Fay & Cerbone, P.C.  
Address: 25 Vreeland Road, P.O. Box 751, Florham Pk., NJ 07932  
Tel. Number: (201) 377-3350


United States et. al. v. CDMG et. al.  
Consent Decree Signature Page



THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

HMAT ASSOCIATES, INC.

Date: March 2, 1994



Michael Luciano

Title: President

Address: 25 Joan Drive

Stanhope, New Jersey 07874

Agent authorized to Accept Service on Behalf of Above-signed  
Party:

Hugh B. McCluskey

Officer

Suite 285

9 Sylvan Way

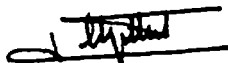
Parsippany, New Jersey 07054

(201) 326-8887

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR CARBONE LORRAINE COMPANY, INC.  
NORTH AMERICA CORP

Date: March 4, 1994




Agent Authorized to Accept Service on Behalf of  
Above-signed Party:

Name: Jean-Claude Gilibert  
Title: Vice President - Industrial Affairs  
Address: 14 EASTMAN ROAD - PARLIPANY - NJ - 07054 - USA  
Tel. Number: (201) 894-3922

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMS REALTY CO., et al., relating to the Sharkey Superfund Site.

FOR Wagner Electric Corporation  
~~COMPANY, INC.~~

Date: 3/4/94

  
Vice President

Agent Authorized to Accept Service on Behalf of  
Above-signed Party:

Name: Andrew J. Perel, Esq.

Title: Rosenman & Colin

Address: 575 Madison Avenue, New York, NY 10022

Tel. Number: (212) 940-6332

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States v. CDMG REALTY CO., et al, relating to the Sharkey Superfund Site.

FOR NEW JERSEY DEPARTMENT OF TRANSPORTATION

Date: 3/7/94

Kathy A. Stanwick  
KATHY A. STANWICK  
Acting Commissioner  
Department of Transportation  
1035 Parkway Avenue, CN 600  
Trenton, New Jersey 08625-0600

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name: Dale Laster Lessne  
Title: Deputy Attorney General  
Address: Division of Law  
Transportation Section  
R.J. Hughes Justice Complex  
25 Market Street  
CN 114  
Trenton, New Jersey 08625  
Tel. Number: (609) 292-5958

**APPENDIX A-1**

**RECORD OF DECISION**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION II

SEP 24 1986

SUBJECT: Record of Decision for  
the Sharkey Landfill

53777

FROM: James R. Marshall, Acting Director  
Emergency & Remedial Response Division (2ERRD)

TO: Christopher J. Daggett  
Regional Administrator (2RA)

Attached for your approval is the Record of Decision (ROD) for the Sharkey Landfill site located in the Townships of Parsippany-Troy Hills and East Hanover, New Jersey. We briefed you on the results of the remedial investigation and feasibility study for this site on September 23, 1986.

The major elements of the selected remedy include capping of the landfill, surface water controls, a gas venting system, and pumping and treatment of ground water in the shallow aquifer immediately beneath the site.

The recommended landfill cap, which includes a two-foot clay layer, meets the performance requirements of the RCRA-Subtitle C regulations (multimedia cap with a permeability of  $10^{-7}$  cm/sec), although it does not meet the compositional criteria of the "model" cap as described in the RCRA guidance (two feet of clay and a synthetic liner). The addition of the synthetic liner would significantly increase the cost of the cap without showing a corresponding increase in effectiveness, and is considered unwarranted in view of the level of contamination and risk as defined by the remedial investigation and feasibility study. The costs of the selected remedy are approximately \$23 million for capital and \$26 million for present worth.

The ROD has been reviewed by the appropriate program offices within Region II and the State of New Jersey and their input and comments are reflected in this document. In addition, the State has given its approval of the selected remedy.

Attachment

SHA 001 2121

**RECORD OF DECISION**  
**REMEDIAL ALTERNATIVE SELECTION**

**Site**

**Sharkey Landfill, Morris County, New Jersey**

**Documents Reviewed**

**I am basing my decision on the following documents, which describe the analysis of remedial alternatives considered for the Sharkey Landfill site.**

- Remedial Investigation Report, prepared by Alfred Crew Consulting Engineers, and Hazen and Sawyer, dated July 1986**
- Evaluation of Alternatives (Feasibility Study) Report, prepared by Alfred Crew Consulting Engineers, and Hazen and Sawyer, dated August 1986**
- Responsiveness Summary, dated September 1986**
- Staff summaries and recommendations**

**Description of Selected Remedy**

- Capping of the landfill in accordance with relevant Resource Conservation and Recovery Act requirements, including the appropriate grading of fill areas**
- A venting system for landfill gases**
- Extraction and treatment of shallow groundwater and leachate**
- Surface water controls to accommodate seasonal precipitation and storm runoff as well as erosion control for river banks**
- Security fencing to restrict site access**
- An environmental monitoring program to ensure the effectiveness of the remedial action**

SHA 001 2122  
001 0430

**Declarations**

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980, and the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300), I have determined that the alternative described herein is a permanent remedy that will control the source of contamination and mitigate off-site migration of contaminants.

I have further determined that this remedy is the lowest cost alternative that is both technically feasible and reliable. It effectively mitigates and minimizes threats to and provides adequate protection of public health and the environment. At the same time, it meets all applicable and relevant Federal and State public health and environmental requirements. Further, the selected remedy is appropriate when balanced against the availability of Trust Fund monies for use at other sites.

The State of New Jersey has been consulted and agrees with the selected remedy.

SEPTEMBER 29, 1986  
Date

  
\_\_\_\_\_  
Christopher J. Daggett  
Regional Administrator



## SUMMARY FOR REMEDIAL ALTERNATIVE SELECTION

### SHARKEY LANDFILL SITE

#### SITE LOCATION AND DESCRIPTION

The Sharkey Landfill site is located in the Townships of Parsippany-Troy Hills and East Hanover, Morris County, New Jersey. The study area lies within the area bounded by Route 46 to the north, New Road to the west, and the Rockaway River to the east. To the south, sections of the site extend beyond Route 280 into the neck between Troy Meadows and the Hatfield Swamp. The general area in which the landfill is located can be described as residential and light industrial to the north and west, with the Whippany River and considerable swamp land to the east and south. The site location is shown in Figure 1.

The site is located approximately 1/2 mile southwest of the Pine Brook section of the Township of Montville, and is centered approximately at 40° 50' 50" north latitude and 74° 20' 50" west longitude. The landfill site consists of approximately 90 acres of irregularly-shaped, disconnected areas. The site has been divided into the following areas as shown in Figure 2:

- North Fill: The North Fill area is located on an island at the northern end of Sharkey Road, and is bounded by branches of the Rockaway River. The North Fill Bridge over the west branch provides limited access from the South Fill to the 26-acre island. The island is owned by the Township of Parsippany-Troy Hills.

This island site contains fill with intermittent soil cover to a depth of 80 feet, resulting in steep, sparsely vegetated slopes containing a number of leachate seeps and eroded gullies. The highest portions of the North Fill were deposited there from the South Fill during the second expansion of the Parsippany-Troy Hills Sewage Treatment Plant (STP). The Rockaway River has undercut the landfill's banks and exposed waste materials along the steep banks.

- South Fill: Most of the South Fill site is located southeast of Sharkey Road and is generally bounded on the east by the Rockaway River, on the south by the Parsippany-Troy Hills STP and the Whippany River, and on the west by the STP and an adjacent wooded area off Edwards Road. This fill also includes the area northwest of Sharkey Road between two ponds and the Rockaway River. The South Fill site is owned by the Township of Parsippany-Troy Hills.

The South Fill, excluding the sewage treatment plant, is approximately 29 acres in size. The original treatment plant structures were reportedly built on piles over the landfilled wastes, but most of the wastes were removed from the areas during construction of the expanded plant facilities.

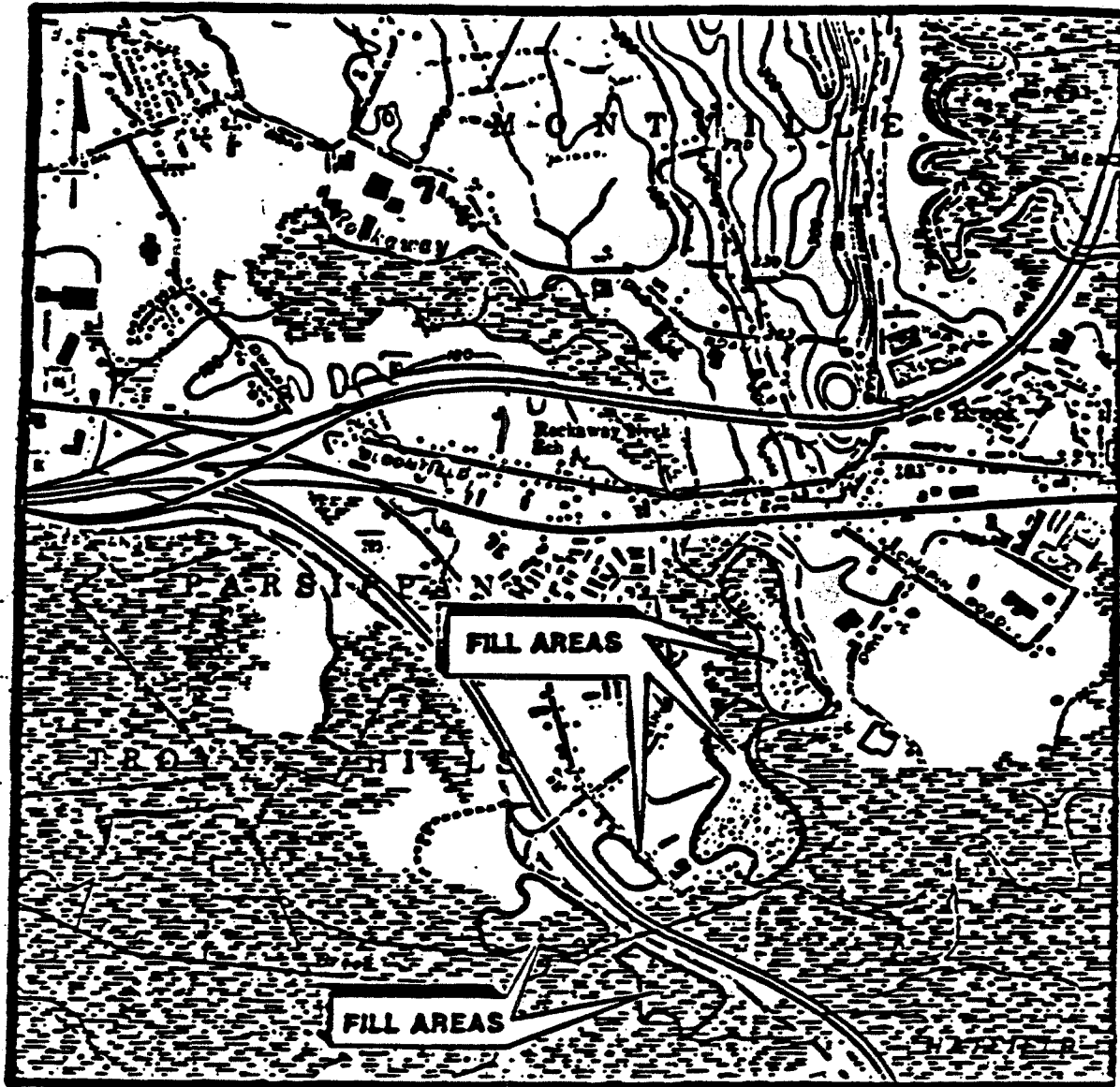


FIGURE 1

SHARKEY LANDFILL LOCATION PLAN

0 2000  
SCALE

SHA 001 2125

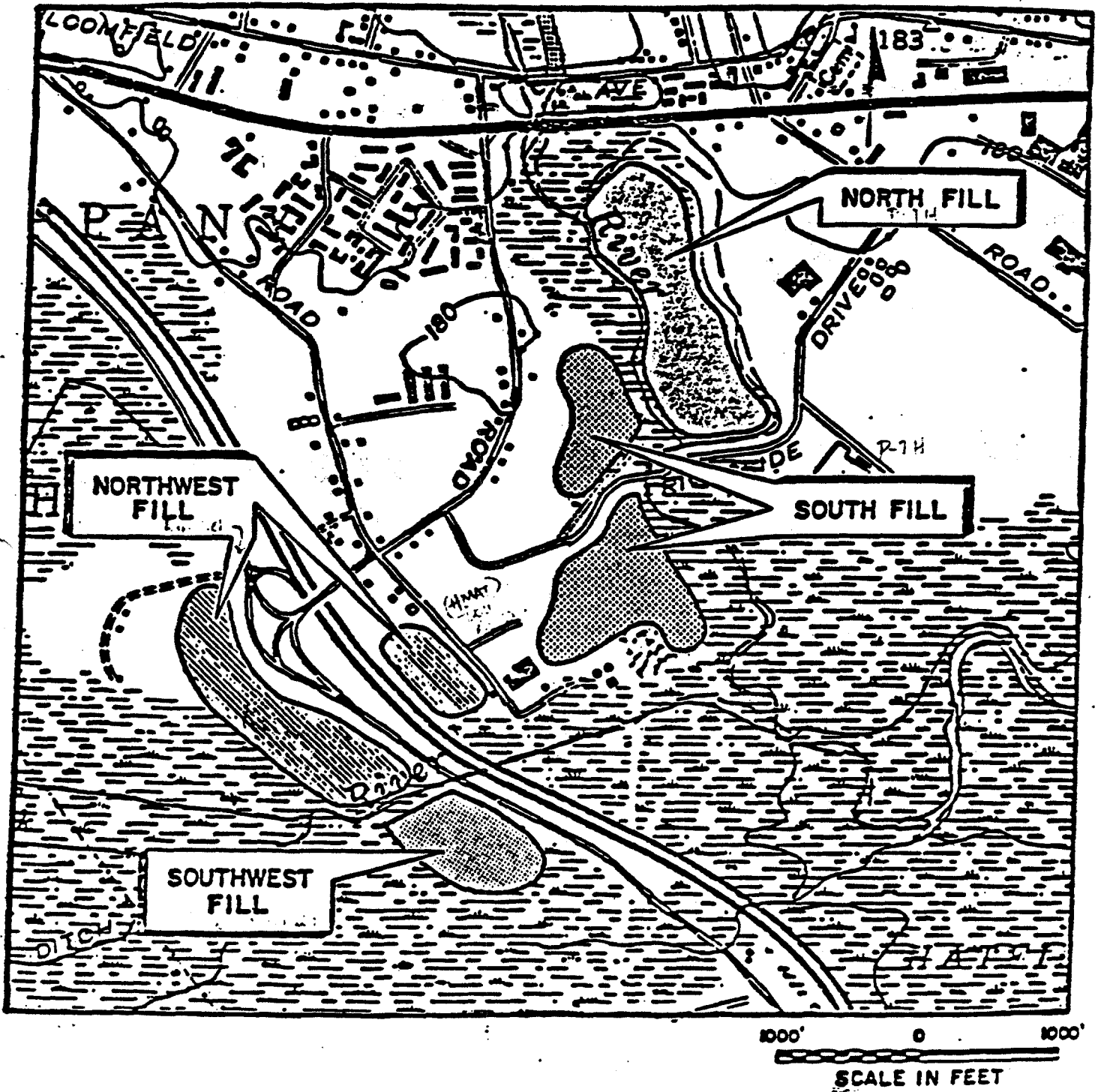


Figure 2 : Sharkey Farms Landfill Site Map

The removed material associated with the first expansion was relocated immediately northwest of the plant where it formed the upper portion of the mound on the South Fill. The fill deposited in this area ranged up to 70 feet high. The mound's side slopes are steep but the earth cover appears to be fairly uniform and, except where some erosion has occurred, to be supporting vegetation. Gas vents are located along the top of the South Fill mound where the re-deposition occurred, but some of the vents have been vandalized and are inoperative.

Access to this fill is mostly unrestricted except for gates recently constructed at the entrance of Sharkey Road and one near the North Fill Bridge. The two ponds, located northwest of the South Fill adjacent to Sharkey Road, are reportedly clean and supporting fish, amphibians, and aquatic vegetation, despite the presence of plastics and gas bubbles.

- Northwest Fill: The Northwest Fill consists of two fill areas divided by Route 280 and relocated Edwards Road. The area southwest of Edwards Road, estimated at 15 acres, is bordered by the new Whippany River to the south, Troy Meadow to the west, and by a heavily-wooded area south of the New Road/Edwards Road intersection. This portion of the Northwest Fill site is owned by CDMG Realty, c/o Ringlieb Family.

The area northeast of Route 280 is bounded by Edwards Road to the northeast, the Whippany River to the southeast, and a wooded area bordering New Road to the northwest. This portion of the Northwest Fill site, with an estimated area of 11 acres, is owned by Dowel Associates.

The two portions of this fill area have sparse to intermittent soil cover with many large areas of exposed refuse, including rusted drums, particularly in the portion southwest of Edwards Road. The topographic relief created by the landfill operations in these areas is not as pronounced as in the North and South Fill areas, generally reaching an estimated elevation of 20 to 30 feet above the adjacent swamp to the southwest. Access to these site areas is limited only by the terrain.

- Southwest Fill: This fill area is located in East Hanover, and is bounded by Ridgedale Avenue to the northeast, a drainage ditch to the southeast, the old Whippany River channel to the southwest, and the relocated new Whippany River to the northwest. The Southwest Fill site, with an estimated area of 9 acres, is owned by Wildlife Preserves.

The Southwest Fill is relatively level and ranges about 10 to 20 feet above the adjacent swampland. It also displays generally good soil cover and vegetative growth. Part of the original landfill was reportedly used for the redistribution of approximately 184,000 cubic yards of waste and cover material excavated during the construction of Route 280 through the landfill. However, recollections of New Jersey Department of Transportation personnel during the construction period indicate that some of the excavated wastes were deposited in the southwest portion of the South Fill. Access to the Southwest Fill is limited only by the terrain.

#### SITE HISTORY

During the 1930's, the site was used as a pig farm, and in 1945, landfilling operations began. In addition to accepting municipal solid waste from several counties in northern New Jersey, the landfill allegedly received hazardous and/or toxic materials between 1962 and 1969 from Ciba-Geigy Company. Records indicate that approximately 560,000 lbs of toluene, 130,000 lbs of benzene, 40,000 lbs of chloroform, 20,000 lbs of methylene chloride, and 3,000 lbs of dichloroethylene were disposed at the site.

Operating reports filed by Sharkey Farms, Inc. with New Jersey Department of Environmental Protection (NJDEP) for the period from April 13, 1972 to May 10, 1972 indicate that approximately 25,700 tons of non-chemical wastes (90 percent household, 8 percent commercial, and 2 percent industrial) and 1,160 tons of "liquid and/or chemical wastes" described as cesspool-type were deposited at the site. In addition to the aforementioned wastes, sludge from the adjacent Parsippany-Troy Hills STP was deposited in the landfill.

Sharkey Farms ceased landfill operations on September 9, 1972. However, it has been reported but not verified that about three million gallons of wastewater of unknown composition were taken to "Sharkey Disposal-Pine Brook" between 1972 and 1974. It is not known, however, whether this is the Sharkey Landfill site. The source of this wastewater was Koppers Chemical Company which manufactured organic compounds. Koppers is no longer in operation.

The Sharkey Landfill is believed to have remained inactive until 1979, when excavation began for the expansion of the Parsippany-Troy Hills STP. Several acres of refuse were removed from the South Fill and re-disposed in the North Fill area. No evidence of chemical waste disposal was reported during the excavation. The expansion project was completed in 1981. Since that time, the site has apparently remained unchanged.

## GEOLOGY

The site is located in the Piedmont Physiographic Province. It is situated within the Rockaway and Whippany River floodplains, in which recent deposition of clay, silt, and sand have occurred. The area is characterized by a swampy lowland with a few surrounding ridges and isolated hills rising above the plain. Most of the area lies between the elevations of 170 and 440 feet above the mean sea level. The alluvial deposits are underlain by stratified sands and gravels of glacial outwash of the Wisconsin Epoch of Pleistocene Age.

The Wisconsin glaciation of Pleistocene Age has resulted in significant morphological change of topography within this physiographic province. During the Pleistocene Era, this area was located near the northwestern shoreline of a very large glacial lake, termed Lake Passaic, bordered by the highlands to the southeast. This lake was fed by outwash from a northerly retreating glacier that formerly occupied the area. The natural drainage outlets for the pre-lake area were to the southeast, near Summit, New Jersey. This outlet area was blocked by glacial moraine during the development of the lake. Lake Passaic grew in size as the glacier retreated northward. The nearest that the Lake Passaic shoreline came to the landfill was near Boonton, approximately five miles northwest of the site.

As the glacier retreated and Lake Passaic grew, coarser outwash deposits were deposited in areas to the south of the retreating glacial front. Shoreline areas also received sediment-laden runoff from the highlands to the west and the Basalt ridges to the north and east. As the glacier retreated even further northward from this area, silt and varved clay lake deposits accumulated on the floor of the expanding lake. Both vertical and lateral changes in composition occur in this type of deposit.

Pleistocenic glaciation buried the previous topography including the preglacial stream valley in the area. The western portion of Essex County delineates the extent of some of these buried valleys. According to this data, the southern part of the site lies near the western fringe of the buried Millburn Valley. The buried valley may be influencing groundwater flow patterns in the area.

Bedrock belonging to the Brunswick Formation of Triassic Age underlies the unconsolidated deposits at the site. The depth to bedrock on the site is believed to be approximately 150 feet on the southern end of the landfill decreasing to 30 feet on the northern end. The bedrock is composed of interbedded red shale and sandstone with occasional conglomeritic beds. The thickness ranges from 6000 feet to 8000 feet.

SHA 001 2129

The southern tip of a Triassic basalt flow known as Towoco Mountain occurs less than 1/2 mile north of the site. It is much more resistant than the adjoining shale and sandstone and thus forms a prominent, crescent shaped ridge approximately seven miles long. The Triassic rocks exhibit as monoclinial feature and dip west-northwest at about eight to ten degrees. An extensive northeast-southwest trending normal fault has uplifted Precambrian Age metamorphic rock to ground level, approximately seven miles west of the site.

#### CURRENT SITE STATUS

During the remedial investigation of the Sharkey Landfill site, the following activities were undertaken:

- Electromagnetic and magnetometer survey of the entire site
- Installation of twenty-six monitoring wells
- Air monitoring
- Collection and priority pollutant analysis of the following:
  - Five shallow soil samples
  - Thirty-two groundwater samples
  - Eighteen surface water and sediment samples from the Rockaway and Whippany Rivers

The results of the chemical analyses of these samples are presented in Appendix 1.

The remedial investigation revealed that the site is characterized by five distinct material types: fill, upper alluvial deposits, varved clay, lower glacial outwash deposits, and bedrock. The two aquifers found at this site - one in the upper alluvial deposits (the upper aquifer) and one in the lower glacial outwash deposits (lower aquifer) - are separated by the clay layer. This clay layer is estimated to have an average thickness of about 25 feet, an overall permeability of  $1.3 \times 10^{-7}$  centimeters per second (cm/sec), and is believed to be continuous throughout the site.

The upper aquifer, which comes in contact with the fill material in portions of the landfill, primarily drains into the Rockaway and Whippany Rivers. These rivers are used for recreational activities in areas near the landfill, and the Rockaway serves as a potable water source further downstream. While no public groundwater supplies are known to be derived from this aquifer in the immediate area, three private wells are believed to exist, upgradient of the site. The Passaic Valley Water Commission does utilize this aquifer for public supply, although the intake for this water supply is greater than eight miles downstream of the Rockaway/Passaic River confluence.

The lower aquifer, which is a major drinking water source in the area, primarily flows in the southwest direction. A public supply well in East Hanover Township, which reportedly produces 500,000 gallons per day, is completed in this aquifer. This well is within two miles of the site in an upgradient direction. Three other private wells are also installed in this aquifer within a mile of the site, and are likewise considered upgradient.

In general, while some contaminants have been found in the sampled media at and near the Sharkey site, they were found at relatively low concentrations. Based on the types and concentrations of these contaminants, the site does not pose a significant public health or environmental risk at this time. Results from the air monitoring performed during the installation of the monitoring wells suggest low probability of respiratory or dermal hazard from air-borne volatile organics under ambient conditions.

During the electromagnetic survey, five anomalous electromagnetic conductivity areas were delineated. Subsequent magnetometer surveys indicated that four of these anomalies were probably caused by buried iron mass. A soil sample was taken of the remaining anomalous area, but no significant detection of organic compounds was reported.

The soil sampling points were selected at leachate seep drainageways, storm water drainageways and the area of unexplained anomalous electromagnetic readings. Several volatile organic compounds were identified from these samples at relatively low concentrations: acetone, 2-butanone, naphthalene, phenanthrene, 2-methylnaphthalene, fluoranthene, and pyrene. Acetone and 2-butanone were also found in groundwater samples. In addition, four pesticides were identified in these soil samples: dieldrin, 4,4'-DDD, endrin, ketone, and PCB-Aroclor 1254. Several inorganic compounds were also detected, but at very low concentrations.

Of the twenty-six monitoring wells installed at the site, fourteen were screened in the upper aquifer and twelve were screened in the lower aquifer. In addition to these monitoring wells, groundwater samples were taken from nearby residential, commercial, and public supply wells. Three of the residential/commercial wells were screened in the shallow aquifer; two were screened in the lower aquifer, and one in the bedrock aquifer.



The analytical results of the samples of the shallow aquifer monitoring wells indicated low levels of organic contamination, with only benzene and trichloroethene exceeding drinking water standards. Inorganic chemicals, primarily heavy metals, were also detected in the shallow aquifer. Some of these contaminants were also found in excess of drinking water standards in both rivers near the landfill. However, a short distance downstream, the contaminant levels are low. The overall adverse effects of the landfill on the water quality of the Rockaway and Whippany Rivers appears to be minimal at this time. Also, the next surface water intake, for the purpose of public consumption, is approximately eight miles downstream of the site; thus, any contaminants would be diluted.

The analytical results of the samples of the deeper aquifer reveal the presence of cadmium, lead, chromium, iron, manganese, mercury, and nickel at concentrations in excess of drinking water standards, indicating that the landfill has impacted the aquifer. The analyses of the lower aquifer also found one organic compound, benzene, in one well at a concentration of 13 micrograms per liter (ug/l). However, this detection is believed to be an isolated occurrence which does not indicate significant organic contamination in the lower aquifer.

While none of the samples of the residential and commercial wells contained organic compounds, iron and manganese were found to exceed drinking water standards in all wells. However, iron and manganese appear to be common to the area. Low levels of cyanide, phenols and chromium were found in the East Hanover public supply well; they were below drinking water standards. Based on the results of the remedial investigation, the location of the existing potable wells in the vicinity of the Sharkey site, and the flow direction of the two aquifers, the landfill does not appear to be adversely affecting potable water quality in the area at this time.

Two rounds of surface water, sediment, and leachate samples were taken, one during dry weather conditions and the other during wet weather conditions. The dry and wet weather surveys detected low concentrations of organic or inorganic priority pollutants. Cadmium and mercury concentrations exceeded the drinking water standards downstream of the site at the Whippany River during wet weather conditions and lead concentrations exceeded the standards at the Rockaway River during dry weather. However, cadmium and lead were found at higher concentrations upstream of the site, and iron and manganese exceeded drinking water standards at upstream sampling locations. The data suggest that the site may not be the only source of these metals. Cyanide was found during the wet weather survey at location SD-7, which is close to the South Fill, at a concentration of 33 ug/l, which is well below the drinking water standard of 200 ug/l. This may indicate that cyanide is not an environmental concern.

### ENFORCEMENT

The U.S. Environmental Protection Agency (EPA) sent Information Request Letters and Notice Letters to potentially responsible parties (PRP's) during the years 1983 and 1984. The PRP's declined to undertake the remedial investigation and feasibility study (RI/FS). Ciba-Geigy met with EPA and NJDEP in May of 1984 to discuss previous site investigations and planned RI/FS activities.

Additional Information Request Letters were sent by EPA in September 1986. Notice Letters asking the PRP's to voluntarily undertake the Remedial Design and Remedial Action activities will be issued after the designated deadline for response to the information letters. On September 22, 1986, EPA and NJDEP met with counsel for Ciba-Geigy to discuss the company's efforts to locate additional parties who may have disposed of hazardous waste at the site.

### EVALUATION OF ALTERNATIVES

The evaluation of the results of the Remedial Investigation provided the basis for establishing the cleanup goals and objectives for site remediation. The cleanup goals and objectives for the Sharkey Landfill site include the following:

- Minimize the potential for migration of the low levels of groundwater contamination
- Minimize the risk to the public from exposure to waste and contaminated soil on the site

The purpose of a Feasibility Study (FS) is to develop and assess remedial action alternatives based on site-specific conditions. At a minimum, one alternative should be developed for each of five categories outlined in the National Contingency Plan and EPA's FS Guidance. The development and screening of remedial technologies for the Sharkey Landfill involved the following procedure:

- From results of Remedial Investigation, identify site problems and pathways of contamination;
- Identify general response actions that address site problems and meet cleanup goals and objectives;
- Identify and screen possible remedial technologies in each general response action based on applicability to site conditions;
- Combine technologies into feasible alternatives;
- Screen alternatives based on protecting the environment, public health, public welfare, and cost.

A list of general response actions that appeared to be appropriate for the Sharkey site is presented in Table 1. This table also lists the associated remedial technologies for each action along with an assessment of the applicability of each remedial action based on site characteristics, waste problems, and existing contamination at the site. Some of the technologies considered were innovative

**TABLE 1**  
**SHARKEY LANDFILL**  
**SCREENING OF ALTERNATIVES**  
**APPLICABILITY/LIMITATION OF**  
**SPECIFIC TECHNOLOGIES**

ACTION	APPLICABILITY	SITE/WASTE LIMITATIONS TO TECHNOLOGY
<b>1. <u>Surface Water Controls</u></b>		
<b>A. Capping</b>	Yes	Slopes may restrict use of certain materials. Also capping is required by NJDEP for closure.
1. Synthetic membrane	Maybe	Incompatibility with site wastes; slope considerations; may be part of multimedia cap.
2. Clay	Yes	Probably as part of multilayered cap.
3. Asphalt	No	Rigidity unsuitable for unstable land-
4. Concrete	No	fill environment; also may be incom-
5. Chemical additives/ Stabilizers	Maybe	patible with waste. May be useful in reducing shrink/swell behavior or neutralizing acid cover
6. Multilayered Cap	Yes	soils. An effective solution.
<b>B. Grading</b>	Yes	In conjunction with cap; not suitable by itself. Slope should be sufficient to promote runoff without erosion.
1. Scarification	Yes	Primarily used for preparing top cap
2. Tracking	Yes	layer for revegetation.
3. Contour Furrowing	Yes	Tracking used principally in steep slopes.
<b>C. Revegetation</b>	Yes	Necessary to prevent erosion and desiccation of cap layers.
1. Grasses	Yes	Root systems would crack cap allowing infiltration.
2. Legumes, shrubs, trees	No	

TABLE 1 (Page 2 of 7)  
SHARKEY LANDFILL  
SCREENING OF REMEDIAL TECHNOLOGIES

ACTION	APPLICABILITY	SITE/WASTE LIMITATIONS TO TECHNOLOGY
D. Diversion and Collection System	Yes	Required to control erosion, runoff during construction and as a secondary device for storm water control.
1. Berms	Yes	Particularly applicable during construction; should be used in conjunction with other controls in a permanent system.
2. Ditches, trenches and swales	Yes	Effective perimeter collection mechanisms.
3. Terraces and benches	Yes	Primarily used in conjunction with grading.
4. Chutes and downpipes	Maybe	Only if necessary during construction.
5. Seepages or recharge basins	Maybe	Not long-term erosion control measure. Possible for surface water diversion depending on permeability of soils.
6. Storage ponds	Maybe	In conjunction with surface water collection systems. Can be used to dampen runoff flows from site.
7. Levee/flood walls	Maybe	Probably ineffective due to inherent localized flooding.
<u>2. Leachates and Groundwater Controls</u>		
A. Capping (See 1.A)	Yes	
B. Barriers	Yes	Geology of site may enhance effective placement of barrier in shallow aquifer. The varved clay provides conceptually the potential for "keying" a vertical retention barrier or slurry wall.
1. Location		
a. Downgradient	Yes	
b. Upgradient	Maybe	
c. Horizontal (bottom sealing)	Yes	Already present in form of natural clay deposit.

**TABLE 1 (Page 3 of 7)**  
**SHARKEY LANDFILL**  
**SCREENING OF REMEDIAL TECHNOLOGIES**

<b>ACTION</b>	<b>APPLICABILITY</b>	<b>SITE/WASTE LIMITATIONS TO TECHNOLOGY</b>
<b>2. Material/Construction</b>		
a. Soil/bentonite slurry wall	Maybe	May be chemically attacked by leachate resulting in greater permeability; strong acids or bases may dissolve soil/bentonite. Extra strength provided by cement makes wall more permeable. Grout can be mixed to set up fast enough to fill large voids, but is very expensive. May be chemically attacked by leachate.  (See 1.A.1).
b. Cement/bentonite slurry wall	No	
c. Grout curtains	Maybe	
d. Sheet piling (steel)	Maybe	
e. Synthetic membrane	Maybe	
<b>C. In-Situ Permeable Treatment Beds</b>	No	Most treatment bed materials are not effective for organic contaminants. Volume of leachate generated at site would quickly surpass capability of beds.
<b>D. Groundwater Pumping</b>	Yes	Used in conjunction with capping and treatment. To lower groundwater and extract leachate/groundwater.
<b>E. Subsurface Collection System</b>	Maybe	Effective leachate/groundwater collection mechanism for shallow aquifer. Combination cap and slurry wall, if implemented, would limit effectiveness. May have clogging problems.
1. Drainage ditches/trenches	Yes	Easily clogged. Difficult to maintain. May require filter cloth envelopes to prevent clogging.
2. French drains/tile	No	
3. Pipe drains timed media drains)	Yes	

-13-

**TABLE 1 (Page 4 of 7)  
SHARKEY LANDFILL  
SCREENING OF REMEDIAL TECHNOLOGIES**

ACTION	APPLICABILITY	SITE/WASTE LIMITATIONS TO TECHNOLOGY
3. <u>Excavation and Removal of Waste and Soil</u>	Maybe	Although some excavation of waste and soil may be necessary as part of site grading, the volume of waste/soil at the site will probably preclude complete removal/excavation, unless a new RCRA facility is created on or off-site.
4. <u>Removal/Containment of Contaminated Sediments</u>		Not applicable as contaminated sediment was not measured at the site.
A. Sediment Removal	No	
B. Sediment/turbidity controls		
1. Silt curtains		
2. Cofferdams/sheet pile stream diversion/barriers	Maybe	Use if cannot excavate during dry weather.
5. <u>In-Situ Treatment</u>	Maybe	Generally unproven, experimental technologies often waste specific.
6. <u>Water Treatment</u>		
A. Incineration/Destruction	No	Not applicable for site. Potential contamination or existing contamination is at very low levels which are not suitable for incineration technology.
B. Gaseous Waste Treatment	No	No gas problems or potential volatile organics were observed or monitored at the site.
C. Liquid Waste Treatment	No	Existing contamination levels and specific compounds found (volatile organics) suggest on-site biological treatment is not applicable.
1. Biological treatment		

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**TABLE 1 (Page 5 of 7)**  
**SHARKEY LANDFILL**  
**SCREENING OF REMEDIAL TECHNOLOGIES**

ACTION	APPLICABILITY	SITE/WASTE LIMITATIONS TO TECHNOLOGY
2. Chemical treatment	No	Same waste limitations as for biological treatment
3. Physical treatment a. Activated carbon b. Air stripping	Maybe	On-site treatment of the shallow aquifer could involve activated carbon and/or air stripping due to the volatile organics found in the shallow wells and at very low concentrations. POTW on-site (Parsippany-Troy Hills Advanced Waste Treatment System)
4. Discharge to publicly owned treatment works	Maybe	
D. Sludge Handling and Treatment	No	No observed sludge problems at the site.
1. Thickening/Dewatering 2. Treatment		
E. Solidification/Encapsulation	No	Waste and site characteristics indicate that this technology is not applicable for the site.
1. Solidification 2. Encapsulation		
7. <u>Land Disposal/Storage</u>		
A. Landfills	Maybe	Although no known RCRA off-site facility has landfill capacity in the immediate area, EPA guidelines suggest that this alternative be screened.
B. Surface Impoundments	Maybe	Liquid waste (leachate) could not be merely collected and stored. May require treatment depending on the contamination concentrations.
8E1Z 100 VHS ration	No	Potential toxicity/hazardousness of waste preclude land application.

**TABLE 1 (Page 6 of 7)**  
**SHARKEY LANDFILL**  
**SCREENING OF REMEDIAL TECHNOLOGIES**

ACTION	APPLICABILITY	SITE/WASTE LIMITATIONS TO TECHNOLOGY
D. Waste Piles	No	Need further treatment/disposal.
E. Deep Well Injection	No	Lower aquifer is used as potable water source.
F. Temporary Storage	No	Not applicable.
<b>8. <u>Contaminated Water Supplies</u></b>		
A. Alternate drinking water supply	No	Public or residential potable wells indicate concentrations below drinking water standards. Some temporary measures may be applicable as other long-term remedial actions are pursued if wells were to become contaminated. If future conditions indicate contamination, these subtechnologies may be applicable. Note: Sampling of lower aquifer which is used for water supply did not indicate any organic contamination.
1. Deeper wells	Maybe	
2. Cistern or tanks	Maybe	
3. Municipal water system	Maybe	
B. Individual Treatment Units	Maybe	In future, if contamination is isolated or if low levels of contamination are found.
<b>9. <u>Relocation</u></b>		
No		Unless emergency or unexpected circumstances occurs.
<b>10. <u>Access Restriction</u></b>		
Yes		Restricting access to site will reduce chances of physical contact with contaminants and reduce chances of normal personal injuries.
A. Signs	Yes	
B. Fencing	Yes	
C. Security guards	No	Security guards would not be cost-effective.



**TABLE 1 (Page 7 of 7)**  
**SHARKEY LANDFILL**  
**SCREENING OF REMEDIAL TECHNOLOGIES**

ACTION	APPLICABILITY	SITE/WASTE LIMITATIONS TO TECHNOLOGY
11. <u>Erosion Control of River Banks</u>	Yes	Must control refuse materials (tires, bottles, debris) from leaving the site along North Fill and South Fill into the Rockaway River.
12. <u>Gas Migration Controls</u>	Yes	The level of methane system may require an active system. Additional air sampling is required to defined methane levels. In any event, NJDEP required at least passive controls for landfill closures.
A. Passive pipe vents	Yes	
B. Passive trench vents	No	
C. Active gas collection system	Maybe	

In following the procedure defined above, screened alternatives were combined to form more definitive alternatives which addressed the Sharkey Landfill's remedial objectives and EPA guidance requirements for Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) feasibility studies. The results are presented in Table 2 where six preliminary alternatives are listed along with the corresponding remedial technologies. Table 3 lists these alternatives and sub-alternatives along with the associated capital and operation and maintenance costs. These remedial alternatives are discussed below:

#### 1. No Action

The National Contingency Plan requires that a No Action alternative be evaluated. Alternative 1, No Action, would involve only long-term monitoring. This monitoring program would include sampling of air, groundwater, and surface water at several locations on a semi-annual basis. Three new shallow wells and one intermediate well, into the lower aquifer, would be installed at the site as part of this alternative. This alternative would allow contaminants to continue to migrate into the environment unchecked. While the present environmental impact is limited, the data does show that hazardous materials are currently migrating from the landfill with the surrounding surface water. Since there were confirmed reports of hazardous waste disposal at the site, there is a potential for a future release of hazardous materials should this alternative be implemented.

#### 2. Minimal Action

Although Alternative 1 provides a program for monitoring at the site, additional actions would be needed to reduce existing site problems. Alternative 2 includes erosion control for the banks of the Rockaway River, soil covering of the exposed areas, rehabilitation of the North Bridge, additional site security to control vehicle and pedestrian access to the Sharkey Landfill, and a long-term monitoring program. Figure 3 shows the areas to be fenced and exposed areas to be covered with clean fill.

Areas of severe erosion are located at the northern tip of the North Fill and along the banks of the South Fill, both on the Rockaway River. In addition, there is no fill cover on the banks of the Rockaway River along these two fill areas, and garbage, tires, glass and rags are exposed. Under Alternative 2, the affected banks would be stabilized through the use of gabion walls.

**TABLE 2**  
**LISTING OF PRELIMINARY REMEDIAL ACTIONS**  
**AND ASSOCIATED REMEDIAL TECHNOLOGIES**

Preliminary  
Remedial Actions

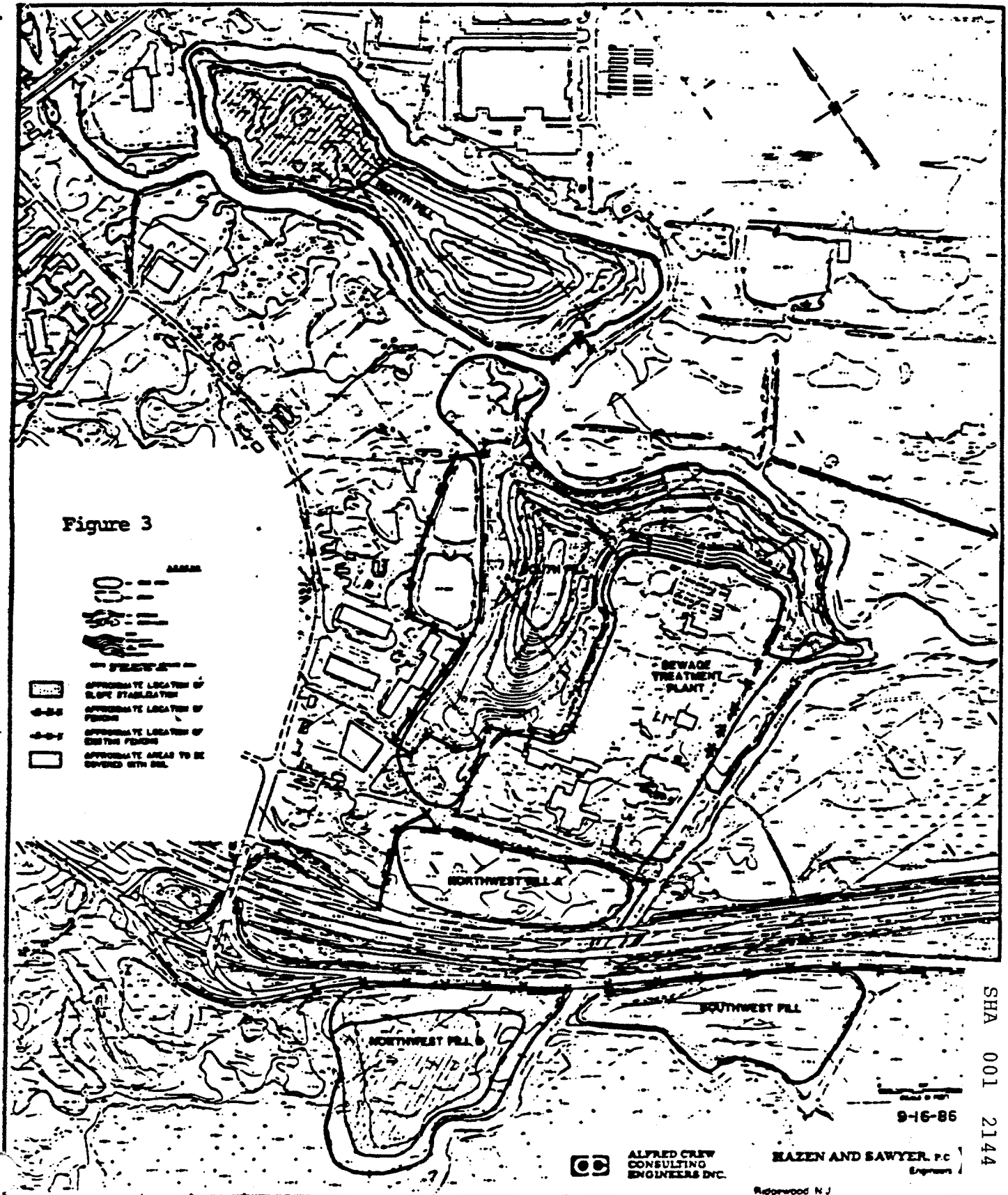
	<u>Remedial Technologies</u>									
	<u>Monitoring</u>	<u>Site Security Control</u>	<u>Cover Exposed Areas</u>	<u>Erosion Control</u>	<u>Capping (Grading) Stormwater Control</u>	<u>Contain- ment Barriers</u>	<u>On-Site Treatment</u>	<u>Off-Site Treatment</u>	<u>Ground- water Pumping</u>	<u>Off-Site Excavation Disposal</u>
1. No Action	X									
2. Minimal Action	X	X	X	X						
3. Capping	X	X		X	X					
4. Containment of Site Contaminants and Capping	X	X		X	X	X				
5. Capping and Groundwater Pumping, Treatment, Reinjection	X	X		X	X		X	X	X	
6. Excavation of Landfill & Off-Site Disposal	X	X		X	X					X

Table 3

Summary of Capital and Present Worth Costs

<u>Alternative</u>	<u>Capital Costs</u>	<u>Present Worth* O&amp;M Costs</u>	<u>Total Present Worth</u>
1. No Action	\$ 40,000	\$ 792,000	\$ 832,000
2. Minimal Action	1,300,000	1,339,000	2,639,000
3. Multimedia Cap			
A. Sanitary closure	15,240,000	1,377,000	16,617,000
B. Synthetic liner	17,700,000	1,424,000	19,124,000
C. RCRA clay	21,400,000	1,502,000	22,902,000
D. RCRA clay and synthetic liner	34,700,000	1,801,000	36,501,000
4. Capping and Containment			
A. RCRA "model" cap	54,800,000	2,226,000	57,026,000
B. RCRA "model" cap for three areas and sanitary closure for two areas	48,700,000	2,152,000	50,852,000
C. RCRA clay cap	41,500,000	1,971,000	43,471,000
5. Capping and Groundwater Treatment			
A. Air stripping system			
a. RCRA "model" cap	36,500,000	2,952,000	39,452,000
b. RCRA clay cap	23,173,000	2,697,000	25,870,000
B. Sewage Treatment Plant			
a. RCRA "model" cap	36,400,000	4,602,000	41,002,000
b. RCRA clay cap	23,100,000	4,348,000	27,448,000
6. Excavation and Removal			
A. Existing RCRA site	617,000,000	-	617,000,000
B. Sanitary landfill	201,000,000	-	201,000,000
C. New RCRA site	289,000,000	-	289,000,000

\* Based on 30 years and 10% interest (factor 9.43)



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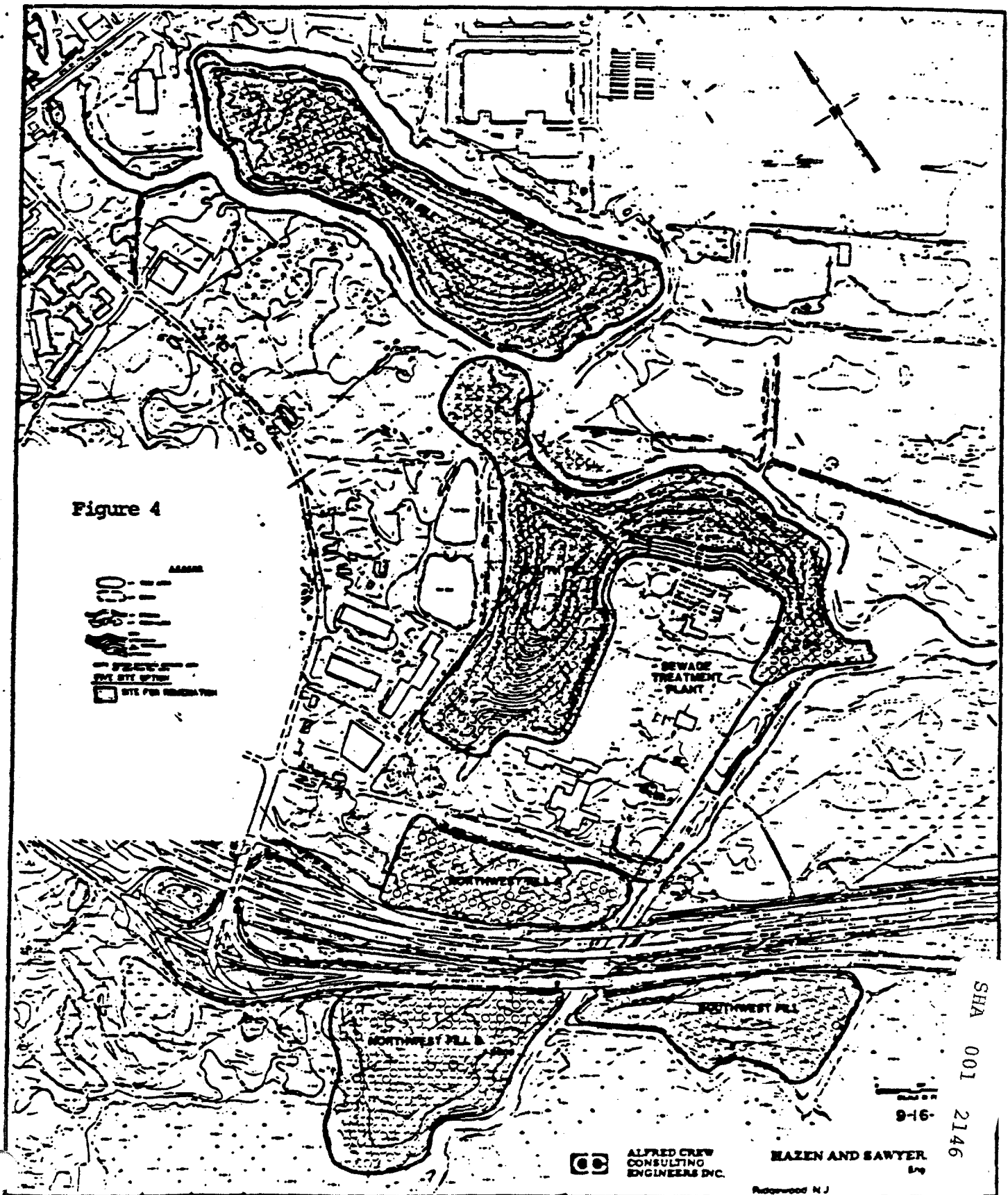
**FIVE SITE OPTION  
ALTERNATIVE 2 - MINIMAL ACTION**

There are areas of exposed refuse which need to be covered in the North Fill, South Fill and the Northwest Fill south of Route 280. These exposed areas could be a potential source of air emissions and also provide a mechanism for precipitation to come in contact with hazardous substances and carry contaminants into the aquifer beneath the site. Covering these exposed areas will include clearing and grading; placing a layer of clean fill; and seeding, fertilizing and mulching. In order to work in areas in the North Fill, the North Bridge which accesses the fill needs to be rehabilitated. Alternative 2, like Alternative 1, would allow contaminants to continue to migrate into the environment and would not reduce the potential for a future release of contaminants that may pose a public health or environmental threat.

### 3. Multimedia Cap

There is documentation of hazardous waste dumping at Sharkey Landfill. Although available data indicate that the level of contamination at present is relatively low and localized in the shallow aquifer which drains into the Rockaway and Whippany Rivers, the potential exists for detection of higher levels of contamination in the future. Alternative 3 includes a multimedia cap over the Sharkey Landfill (Figure 4), surface water (runoff) control, erosion control for the banks of the Rockaway River, rehabilitation of the North Bridge, installation of gas collection vents, additional site security, and long-term monitoring. This alternative would control the migration of contaminants off-site by reducing the rate of leachate produced through infiltration of precipitation. However, there would still be a natural exchange between the landfill and rivers, especially on the North Fill and part of the South Fill, where a portion of the fill material is actually situated below the surface water level of the Rockaway River. The potential environmental and public health risks associated with the exposure of fill material and leachate seeps are greatly reduced by this alternative.

Four capping options were evaluated, each providing a different degree of protection and reliability. They include capping with clay, capping with a synthetic liner, and capping with a combination of clay and a synthetic liner (Response Conservation and Recovery Act (RCRA) "model" cap).



FIVE SITE OPTION  
ALTERNATIVE 3, 4, 6 AREAS OF REMEDIAL ACTION

#### **A. Clay Cap - Sanitary Landfill Closure**

The Sharkey Landfill can not be considered a sanitary landfill because hazardous waste dumping at the site is documented. Therefore, Alternative 3-A, which would close the site as a sanitary landfill, is not considered appropriate. However, it does satisfy the objective of evaluating remedial actions which do not attain applicable or relevant public health or environmental standards but would reduce the likelihood of present and future threats from hazardous substances.

For this alternative, a complete cap typically consists of the following: a bedding layer placed and compacted on top of the solid waste; an impervious layer; a drainage layer; and a vegetative layer. Figure 5 shows the detailed typical cross-section of the cap.

The implementation of sanitary landfill-closure is based on known technologies and engineering principles and is effective in reducing infiltration. Although increased air emissions would be expected during grading, this alternative will provide some long-term benefits. These benefits include a reduction in ponding of rain water on the fill, a reduction in leachate generation and subsequent off-site migration of contaminants, and a reduction in potential air emissions due to inadequate cover. However, the wastes would still remain in contact with the groundwater, specifically in the North Fill and areas of the South Fill, could cause some leachate production and off-site contamination. This alternative is implementable, provides some degree of reliability, and involves minimal operation and maintenance.

#### **B. Synthetic Liner Cap**

This alternative, which would include the same closure standards as for Alternative 3-A, considers the use of a synthetic liner as the component of the impervious layer instead of clay. The capping criteria would be as follows: a 6-inch sand bedding; a 30-mil synthetic liner; a 1-foot drainage layer; and 1 foot of topsoil and vegetation.

The environmental benefits and the implementability of this alternative are similar to those for Alternative 3-A. However, because of the steep slopes at the site, the synthetic liner is not considered as reliable as clay.

This alternative does not attain all of the environmental standards but would reduce the likelihood of present and future threats from hazardous substances.



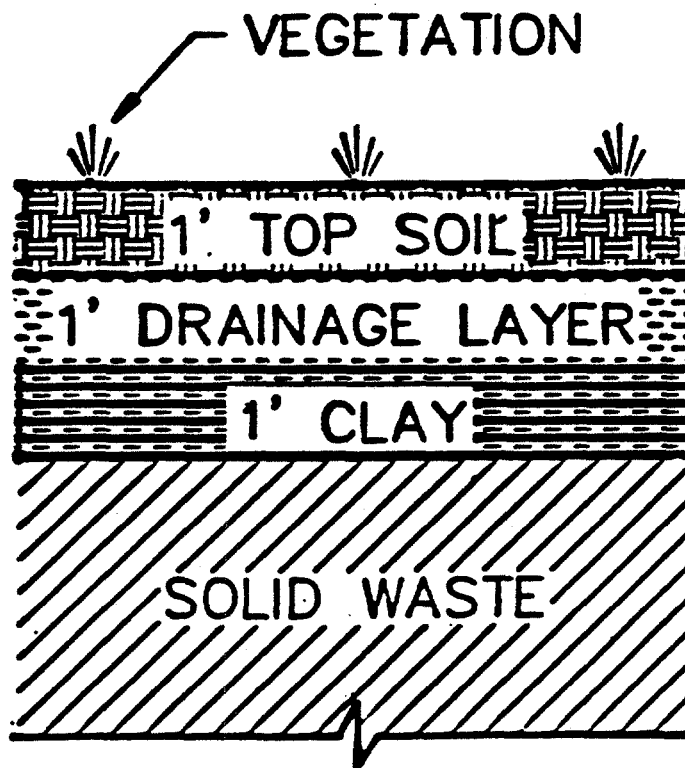


FIGURE 5

SANITARY LANDFILL CAP

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### C. Clay Cap

This alternative considers the closure of the landfill as a hazardous waste site in accordance with relevant RCRA and State requirements.

Instead of using one foot of clay for the impervious layer, as in Alternative 3-A, Alternative 3-C would include two feet of clay. This alternative meets the performance requirements of RCRA Subtitle C which includes a multimedia cap with a permeability of  $10^{-7}$  cm/sec. It also is consistent with State of New Jersey requirements for the closure of landfills which accepted all types of solid wastes.

There is evidence of hazardous waste dumping at the landfill and hazardous substances were found to be present. Although available RI/FS data do not indicate that significant quantities of contaminants are currently being released to the environment, there exists the possibility of future releases which may cause serious environmental and public health impacts. This capping alternative would consider such a potential threat and provide a more protective and reliable cover than Alternative 3-A or 3-B. Figure 6 shows the detailed typical cross-section of the cap.

The environmental benefits of this alternative are greater than those for Alternative 3-A, based on the more impermeable and reliable surface barrier. However, wastes would still remain in contact with the groundwater as in the previously described capping alternatives, which could cause leachate production and off-site contamination.

Implementation of this capping option is based on known technologies and engineering principles and is effective in reducing infiltration. This alternative has similar, but increased benefits compared to Alternative 3-A, and involves minimal operation and maintenance.

### D. Clay and Synthetic Liner Cap - RCRA "Model" Cap

This alternative involves the closure of the site as a hazardous waste landfill utilizing a RCRA "model" cap. The "model" cap consists of the following: a bedding layer installed on top of the solid waste; an impervious layer (clay); a second bedding layer; a second impervious layer (synthetic liner); a drainage layer; and a vegetative layer (see Figure 7). The cover requirement used for this alternative also meets NJDEP Regulations pursuant to N.J.A.C. 7:26-10, "Additional Operational and Design Standards for Hazardous Waste Facilities", specifically N.J.A.C. 7:28-10.8, "Hazardous Waste Landfills".

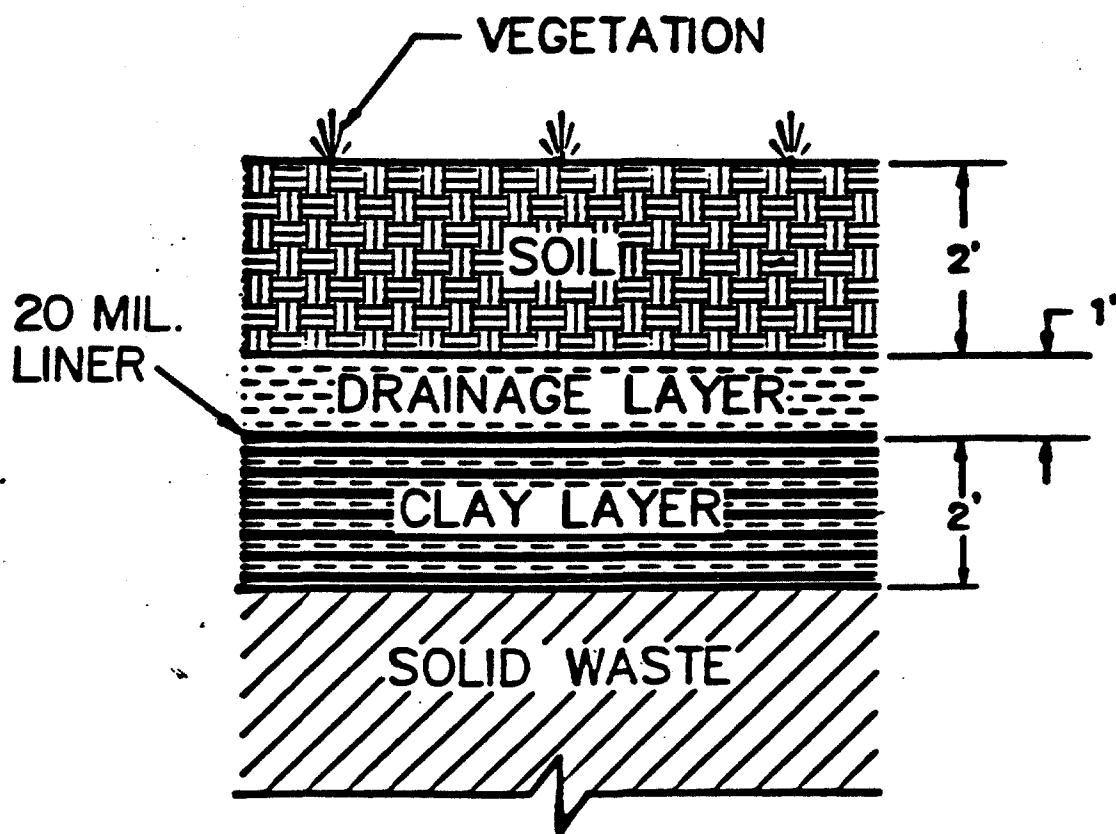


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FIGURE 6

RCRA CLAY CAP



SHA 001 2151

FIGURE 7

RCRA "MODEL" CAP

The environmental benefits of this alternative are similar to, but greater than those for any of the other capping options. The "model" cap would provide a more impermeable surface barrier than the other capping options. However, because the waste would remain in contact with the groundwater, the alternative does not achieve greater compliance with RCRA Subtitle C, Hazardous Waste Management Regulations.

Although this alternative does not attain all the environmental standards, it would reduce the likelihood of present and future threats from hazardous substances.

#### 4. Multimedia Cap and Containment Barrier (Slurry Wall)

This alternative adds to Alternative 3 by providing an additional component to the remedial action, containment of the shallow aquifer. The alternative controls migration of contaminants from the landfill through a multilayered cap which controls leachate production, and a slurry wall barrier along the perimeter of the fill areas which control the migration of contaminated groundwater in the shallow aquifer. The slurry wall would be keyed to the clay layer beneath the site.

The slurry wall would minimize the lateral groundwater flow into and out of the fill areas. The total length of the proposed slurry wall would be approximately 21,000 linear feet with an average depth of 40 feet. The remedial technologies associated with Alternative 4 would be the same as Alternative 3, in addition to the construction of the slurry wall. Groundwater containment by use of slurry wall is a proven, effective technology.

Based on the present data and past references, three options have been considered under this alternative.

Option A - Installing a RCRA "model" cap and a slurry wall throughout the entire fill area. The cap will be installed with the same specifications as for Alternative 3-D.

Option B - Installing a RCRA "model" cap and slurry wall for the North and South Fills, and installing a sanitary landfill cap in the Northwest (North and South of Route 280) and Southwest Fills. The sanitary landfill cap is well explained in Alternative 3-A.

Option C - Installing a RCRA clay cap and slurry wall throughout the entire area. The components of the cap are described in Alternative 3-C.

This alternative meets applicable or relevant public health and environmental standards and will satisfy both Federal and State requirements concerning the closure of hazardous waste landfills. This alternative prevents the contact of waste with the groundwater, complying with RCRA Subtitle C, Hazardous Waste Management Regulations. Therefore, this alternative provides more environmental protection than Alternative 3.

## 5. Multimedia Cap, Groundwater Pumping and Treatment

This alternative would control migration of contaminated material off-site through installation of a multimedia cap and groundwater extraction and treatment. Based on EPA and NJDEP requirements for closure of a landfill, treating groundwater without providing a surface cap is not considered an acceptable alternative.

Under this alternative, groundwater would be pumped from the landfill areas, as shown in Figure 8, to extract contaminated groundwater from the shallow aquifer. Groundwater would be removed from the shallow aquifer at a rate equivalent to the estimated recharge to that aquifer. It is projected, however, that the refuse in some areas of the landfill will exist below present and anticipated post-closure groundwater levels. Therefore, there would be a continuing interaction between groundwater and refuse materials. Extraction of the groundwater should effectively isolate the contaminants from the surrounding ground and surface waters.

Under this alternative, a series of perimeter recovery wells would be constructed along a line parallel to the Rockaway and Whippany Rivers, bordering all five areas, and linked by a common trench along the pumping line. The contaminated groundwater could be either treated on-site using a separate air stripping treatment system or treated at the Parsippany-Troy Hills sewage treatment plant, which is on the site. These two treatment alternatives are discussed below:

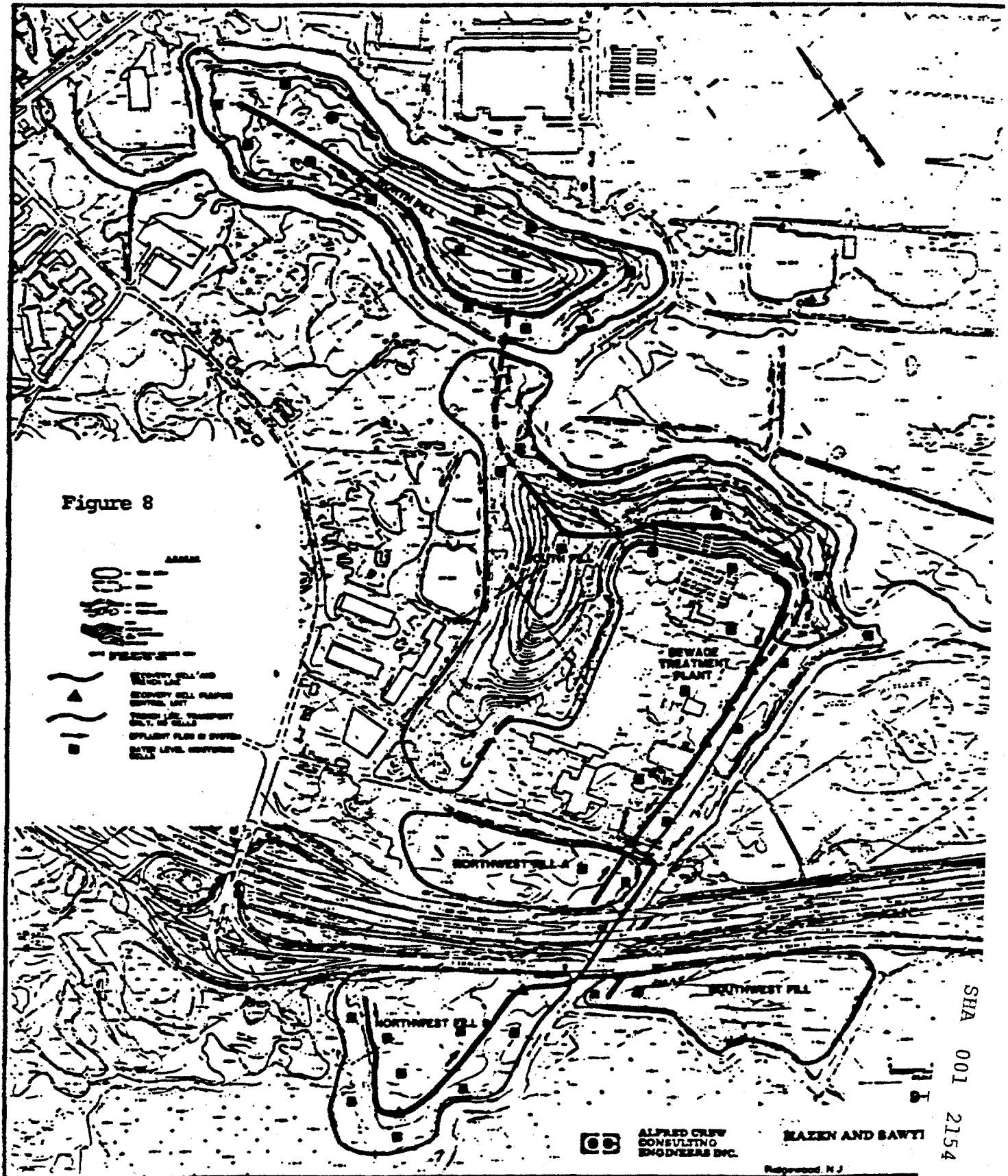
### Option A: On-Site Air Stripping Treatment System

This alternative would involve a centralized treatment system with discharge of treated effluent to the Rockaway River. A preliminary unit sizing for an air stripping system would be a 2.5 feet diameter packed column with 15 to 20 feet depth of plastic media.

### Option B: Parsippany-Troy Hills Sewage Treatment Plant

The existing sewage treatment plant includes secondary biological treatment with seasonal nitrification and denitrification. Since the contaminants detected in the groundwater are biodegradable, the contaminated groundwater could be treated by the sewage treatment facility.

The environmental benefits of this alternative exceed those of Alternative 3. Not only is leachate production reduced through the installation of a cap, but contaminants would not migrate off-site because of the effective isolation of the waste through groundwater pumping.



**FIVE SITE OPTION**  
**ALTERNATIVE 5 - CAPPING AND GROUNDWATER PUMPING**

The isolation of wastes through groundwater management is a demonstrated, reliable technology, and is implementable. In addition, this alternative meets applicable or relevant public health and environmental standards.

#### 6. Excavation and Off-Site Disposal of Waste

This alternative would control migration of materials off-site from the Sharkey Landfill through the excavation and removal of the entire landfill, and transporting the excavated material for disposal at an approved landfill site. The entire fill area as shown in Figure 4 was considered for off-site disposal. Three disposal options were considered in assessing this alternative.

- Option A - Transport the waste to an approved existing RCRA disposal facility, such as at Model City, New York.
- Option B - Transport the material to a local sanitary landfill, such as at the Meadowlands, New Jersey.
- Option C - Transport the waste to a new RCRA facility to be constructed as part of this alternative.

The estimated amount of material to be removed is 3,900,000 cubic yards of fill. The excavated areas would be backfilled, regraded up to an elevation of approximately 175 feet above mean sea level, and seeded. The backfilling operation would require approximately 1,500,000 cubic yards of fill. Since the actual location(s) of areas of potential contamination were not positively defined from historical information or from the remedial investigation, total removal and disposal of the Sharkey Landfill material was the only case considered for the off-site disposal.

This alternative meets the CERCLA remedial objective that requires evaluation of an alternative which provides for treatment or disposal of hazardous substances in an approved off-site facility. By removing all the fill material, one can expect the site to be considered clean after completing the filling, grading and revegetation. Therefore, this alternative also satisfies the requirements of examining a remedial alternative which exceeds existing standards. This alternative would provide a highly effective means to mitigate the potential exposure to any contaminants in the landfill or any material remaining at the site.

#### COMMUNITY RELATIONS

A public meeting was held on November 29, 1984 at the Parsippany-Troy Hills Municipal Building to discuss the proposed RI/FS.



Notices announcing the meeting were sent to local officials and interested parties as outlined in the Sharkey Landfill Community Relations Plan. At this meeting, NJDEP officials and their consultants discussed in detail the work to be conducted as part of the RI/FS for the site.

The RI/FS report was made public on August 13, 1986. A public comment period began on that day and was closed on September 2, 1986. A second public meeting was held on August 21, 1986 to discuss the results of the RI/FS and the preferred alternative. Concern expressed by the public and other entities are addressed in the Responsiveness Summary appended to this document (Appendix 2).

#### CONSISTENCY WITH OTHER ENVIRONMENTAL LAWS

In addition to accepting municipal solid waste, the Sharkey Landfill allegedly received hazardous and/or toxic materials between 1962 and 1969 from Ciba-Geigy, a pharmaceutical company. Sharkey Farms Landfill was permitted by the local health department to operate until 1970, when State regulations preempted all local regulations. A certificate to conduct a refuse disposal operation (Certificate No. 1458300) for refuse, chemical waste (liquid and solid), and waste oils was issued on July 10, 1970 by NJDEP. The landfill reportedly operated for six days a week until a July 6, 1972 order issued by the New Jersey Department of Public Utilities required the discontinuance of Saturday service in order to provide the time needed to install sufficient cover material, in accordance with Chapter 8 of the New Jersey Sanitary Code.

The sanitary landfill closure alternative considered the history of the site and the relevant State guidelines and regulations. However, the documentation of hazardous waste dumping, and available chemical data indicating the presence of hazardous substances in the landfill site, suggest that implementation of the sanitary landfill closure alternative is not appropriate. To cap the site as a sanitary landfill to comply with the New Jersey "Non-hazardous Waste Management" Regulations would not provide a sufficient level of protection to accommodate the potential future releases of contaminants. Moreover, this alternative is not consistent with applicable Federal requirements under RCRA for hazardous waste facilities.

Because of evidence of hazardous waste dumping and the detection of some hazardous substances at the site, the relevant and appropriate standards for closure are stated in RCRA Subtitle C. The hazardous waste cap and groundwater barrier alternative was developed as a remedial alternative to comply with RCRA. The RCRA cap with groundwater extraction, and the RCRA cap alone, would allow the waste to come into contact with the groundwater, specifically in the North Fill and part of the South Fill. Therefore, these alternatives would not ensure compliance with RCRA Subtitle C as fully as would the cap with the slurry wall.

The RCRA cap with groundwater pumping would effectively isolate the waste so that generated leachate does not migrate off-site. Groundwater would be extracted and treated either on-site or at the sewage treatment plant. The excavation and off-site disposal alternative would also comply with RCRA because the disposal facility would be required to comply with the appropriate regulations.

#### RECOMMENDED ALTERNATIVE

In evaluating the alternatives, it was determined that Alternative 5-A(b) would provide sufficient protection of public health and the environment, would meet the performance standards of the applicable requirements, is cost-effective and has a legal basis for remedial action under Superfund.

As stated previously, hazardous wastes were disposed of at the Sharkey Landfill site, which was not properly closed after operations ceased. As a result, landfill contaminants have migrated and continue to migrate into the shallow aquifer beneath the site and the adjacent surface water bodies. Although available data do not suggest that significant quantities of hazardous substances are being released at the present time, there exists the potential for future releases of contaminants at levels which could pose a serious threat to public health and the environment. Therefore, Alternative 1 (No Action) and Alternative 2 (Minimal Action) are not considered adequate because they do not meet the proper closure requirements for landfills nor do they address the potential threat of a future release of contaminants.

Alternative 3 addresses capping of the landfill in accordance with RCRA and State requirements. However, wastes that may contain hazardous substances are known to be in contact with the groundwater which discharges into the surface waters surrounding the site. This condition could cause the production of leachate and off-site migration of contaminants. Therefore, Alternative 3 was not considered appropriate.

Alternative 6 (Excavation and Removal) would totally remove the threat to public health and the environment. However, this alternative is extremely expensive, difficult to implement, and unwarranted based on the level of risk associated with the site.

The two alternatives which address leachate production and the off-site migration of landfill contaminants into the groundwater are Alternative 4 (Capping and Containment) and Alternative 5 (Capping and Groundwater Treatment). In view of the level of health or environmental risk, it is believed that Alternative 5 would provide sufficient control of the migration of contaminants through the groundwater pathway. Alternative 4 would more effectively isolate the wastes from the environment and thus provide a higher degree of control of contaminant migration. However, the substantial higher cost to implement Alternative 4 is not considered cost-effective in comparison to Alternative 5.

In evaluating the options within Alternative 5, RCRA and State closure requirements were considered, as were groundwater treatment requirements. As discussed previously, the Sharkey Landfill is considered a hazardous waste site. Therefore, the relevant and appropriate Federal statute governing closure is RCRA Subtitle C. The recommended alternative meets the performance requirements of the relevant RCRA regulations (multimedia cap with a permeability of  $10^{-7}$  cm/sec), although it does not meet the compositional criteria of the RCRA "model" cap. The "model" cap with the added synthetic liner would significantly increase the costs without showing a corresponding increase in effectiveness. It is considered unwarranted for this site. If a synthetic liner is required in the future, the additional grading of the fill areas will facilitate installation.

The multimedia cap of Alternative 5-A(b) will reduce the infiltration of precipitation through the landfill, and the use of a pumping and treatment system will prevent contaminants from migrating off-site. The pumping system, as explained in Alternative 5, will be installed to capture contaminated groundwater.

One final option which was considered and rejected involved treating some fill areas as hazardous waste sites and others as sanitary landfills. Based on information concerning the time of hazardous waste dumping and the transfer of waste materials among the various fill areas during construction of a highway and sewage treatment plant, it was determined that such a distinction (i.e., hazardous versus non-hazardous) could not definitely be made. Because of the lack of information confirming the absence of hazardous waste at any of the fill areas, the recommended alternative includes capping and groundwater pumping for all five fill areas.

A cap cross-section and a site lay-out illustrating the recommended alternative are provided in Figures 64 and 71. The features of the selected alternative are described in Table 4.

#### OPERATION AND MAINTENANCE

Upon installation of the recommended remedial action, operation and maintenance (O&M) will consist of:

- O&M of the groundwater pumping and treatment system
- Routine maintenance of the landfill cap and gas vents
- Routine maintenance of the site to control erosion and surface water runoff
- Long-term monitoring to assess the quality of the groundwater (lower and upper aquifers) and surface waters (Rockaway and Whippany Rivers)

The annual operation and maintenance cost is estimated at \$330,000.

Table 4

Capital Cost Estimate For Alternative 5-A(b)

<u>Activity</u>	<u>Capital Cost*</u>
1 - Capping all five areas	\$18,513,000
2 - Groundwater pumping and recovery system	1,700,000
3 - Air stripping treatment system	100,000
4 - Clear, grub and grade sites	327,000
5 - Cover exposed areas	454,000
6 - Methane collection vents	284,000
7 - Shoreline stabilization	192,000
8 - Storm water control	1,319,000
9 - Improvement of site security	145,000
10 - Rehabilitation of North Fill Bridge	91,000
11 - Long-term monitoring (installation of additional monitoring wells)	<u>48,000</u>
Total Capital Cost	23,173,000

\* 10 percent for contingency and 10 percent for engineering, legal administration, and startup costs are included.

**SCHEDULE**

<b><u>Project</u></b>	<b><u>Date</u></b>
- Record of Decision	September 1986
- Initiate Enforcement Action	September 1986
- Obligate Design Funds	Pending CERCLA Reauthorization or State Funding
- Amend Cooperative Agreement for Design	Pending CERCLA Reauthorization or State Funding
- Initiate Design	Pending CERCLA Reauthorization or State Funding
- Complete Design	Pending CERCLA Reauthorization or State Funding

**APPENDIX I**  
**SUMMARY**  
**OF**  
**SAMPLING RESULTS**

SHA 001 2161

# SUMMARY OF RESULTS

## NORTH FILL

<u>ORGANICS (PPB)</u>	<u>WS-9</u>	<u>WS-11</u>	<u>WS-12</u>	<u>WS-13</u>	<u>WI-15</u>	<u>WI-16</u>	<u>SD-5</u>	<u>SD-10&amp;11</u>	<u>L-6</u>	<u>L-8</u>	<u>S-5</u>
Chlorobenzene	17		18								
Toluene	14	73									
Ethylbenzene	27	42									
Methyl Chloride		32						940*			
Xylene			22	21				310*			
Chloroform				34							
Benzene				22							
Benzo (a) Pyrene					27		15				
Acetone								940*			16
Tetrachloroethene								940*			
Trichloroethene								310*			

## INORGANICS (PPB)

Chromium	146	334	75	182			60				60
Lead	480		77						32		776
Mercury	1.6										
Nickel	564	1390	320	405			70	70	46		
Barium				1440							
Cadmium						19			6.1		
Cyanide									332		

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WS = Shallow wells

WI = Intermediate wells

WD = Deep wells

SD = Surface water samples \* Sediment Samples

L = Leachate samples

S = Soil samples

(Cont. SUMMARY OF RESULTS)

SOUTH FILL

ORGANICS (PPB)    WS-2 WS-6 WS-7 WS-8 WS-17 WI-6 WI-7 WI-8 WI-17 WD-2 SD-3 SD-6 SD-7 SD-8&9 L-3&4 S-4

Chloroform	75															
Trichloroethene	13															
Benzene	6								13							

ACID BASE

NEUTRAL (PPB)

Bis(2-Ethylhexyl)																370*
Phthalete																
Phenanthrene																270*
Flouranthene																670*
Pyrene																200*
Benzo (a)																200*
Anthracene																
Benzo (k)																330*
Fluoranthene																

INORGANICS (PPB)

Chromium	4990					97			206							
Nickel	87	63	60	41	49	16	31	181	39	60	60				80	
Lead	63			145						70*						138
Cadmium									25	13			12			
Mercury										2.1						
Cyanide													33		32	
Barium															1020	

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WS = Shallow wells

WI = Intermediate wells

WD = Deep Wells

SD = Surface Water Samples    \* Sediment Samples

L = Leachate Samples

S = Soil Samples



(Cont. SUMMARY OF RESULTS)

NORTHWEST (S) FILL

<u>ORGANICS (PPB)</u>	<u>WS-5</u>	<u>WI-5</u>	<u>L-2</u>	<u>SD-2</u>
Chlorobenzene	23		10	
Benzene	28			

INORGANICS (PPB)

Chromium			80	60
Nickel			50	

NORTHWEST (N) FILL

<u>ORGANICS (PPB)</u>	<u>WS-3</u>	<u>WI-3</u>	<u>WD-3</u>	<u>L-5</u>	<u>S-3</u>
Acetone					57
Benzo (a) Pyrene					1500

INORGANICS (PPB)

Chromium	54	68	143		
Lead	290		80		159
Cyanide	248				
Nickel	172	72	307	100	27

SOUTHWEST FILL

<u>INORGANICS (PPB)</u>	<u>WS-4</u>	<u>WI-4</u>	<u>SD-2</u>	<u>L-1</u>	<u>S-1</u>
Chromium	341		60	69	
Lead	81				28
Nickel	246	17			50

BACKGROUND

<u>ACID BASE NEUTRALS (PPB)</u>	<u>WS-14</u>	<u>WS-10†</u>	<u>SD-1</u>	<u>SD-4</u>
Bis(2-Ethylhexyl) Phthalate				370
Fluoranthene				200

INORGANICS (PPB)

Chromium	89	492		70
Nickel	60	594		70
Cadmium			13	
Lead			80	
Barium		1280		

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WS = Shallow Wells

WI = Intermediate Wells

WD = Deep Wells

SD = Surface Water Samples \* Sediment Samples

L = Leachate Samples

S = Soil Samples

† Undetermined as background

**APPENDIX II**  
**RESPONSIVENESS**  
**SUMMARY**

SHA 001 2165

**Sharkey Farms Landfill  
Parsippany-Troy Hills and East Hanover Townships  
Morris County  
New Jersey**

**Responsiveness Summary  
for comments on the  
On-site Feasibility Study**

This community relations responsiveness summary, prepared as part of the Record of Decision (ROD), is divided into the following sections:

**I. Background on Community Involvement and Concerns**

This is a brief history of community interest concerning the Sharkey Farms Landfill site and a summary of community relations activities conducted by the New Jersey Department of Environmental Protection (NJDEP) and the United States Environmental Protection Agency (USEPA) prior to and during the Remedial Investigation/Feasibility Study (RI/FS).

**II. Summary of Major Questions and Comments Received during the August 21, 1986 Public Meeting**

This is a summary of major questions and comments directed to NJDEP during the August 21, 1986 public meeting regarding the results of the Feasibility Study. NJDEP's responses are included in this section.

**III. Remaining Concerns from the August 21, 1986 Public Meeting**

This is a discussion of remaining community concerns of which NJDEP and USEPA should be aware in conducting the remedial design and remedial actions at the Sharkey Landfill site.

**IV. NJDEP's Revised Recommended Alternative**

This is a list of the components of the revised recommended alternative.

**V. Summary of Major Written Questions and Comments Received during the Public Comment Period and NJDEP's Responses**

**Attachments**

- A. Passaic River Coalition letter 2/83
- B. Attendance sheet and information package distributed at the 11/29/84 public meeting
- C. Copy of information package submitted by Mr. and Mrs. Jurgel on 1/4/85 and 1/18/85
- D. Mailing list for Sharkey Farms Landfill site
- E. Attendance sheet and information package distributed at the 8/21/86 public meeting
- F. Copies of letters received by NJDEP during public comment period
- I. Background on Community Involvement and Concerns  
The main area of concern raised prior to the Remedial Investigation/Feasibility Study (RI/FS) was that the Sharkey Landfill site clean-up progress as quickly as possible. The Passaic River Coalition expressed their interest in the site in a letter to the NJDEP in February 1983. Ella

Filippone, Executive Administrator of the Coalition, stressed the Coalition's interest in the Passaic River Watershed basin, and in particular, the possibility of pollutants moving into the aquifers from the landfill. A particular concern was the fact that the landfill operated before regulations existed. The Coalition requested that a monitoring program be implemented prior to cleanup, and that "containment and cleanup... be expedited, as it poses a grave threat to a designated sole source aquifer" (see attachment A).

In addition to the Passaic River Coalition, there were various requests for information on the landfill status from various parties. These included requests from then Assemblyman Dean Gallo's office, the Townships of Parsippany-Troy Hills, East Hanover, Montville and Washington, the Boonton-Montville League of Women Voters, individual citizens, the Star Ledger and WMTR radio. Again, the primary issues of concern were potential contamination of the aquifers and that site clean-up be implemented in a timely manner. In each case, information on the Sharkey site was given over the telephone by the NJDEP's, Bureau of Community Relations and all interested parties were placed on the mailing list for this site.

An attempt was made by NJDEP to locate any additional interested parties or active citizen groups in the area. In contacts with the Parsippany-Troy Hills and East Hanover Town Halls and Health Departments, it was determined that there were no additional organized active citizens/environmental groups in the area.

On November 29, 1984 NJDEP held a public meeting at the Parsippany-Troy Hills Town Hall to discuss the initiation of the RI/FS at the site. Notification of the meeting was accomplished through press releases and direct mailing of notice to local, state and federal officials, as well as all concerned citizens and citizens groups. Approximately 30 people attended the meeting and agendas and information packages were distributed (see attendance sheet and information package, Attachment B). Issues and concerns raised during the meeting and responses given included:

**Comment:** Concern about creating unnecessary fear among local residents and spending so much money when previous DEP monitoring did not indicate the presence of a toxic condition.

**Response:** It was pointed out that a careful definition of hazardous and toxic terms was important. EPA sampling in 1980 and 1981 indicated that toxic substances may be present at the landfill. DEP sampling was conducted in 1978 when sampling techniques were not as advanced as they are today (1984).

**Comment:** The Parsippany-Troy Hills Volunteer Fire Department expressed concern about the emergency response plan and offered to point out locations where fires have occurred on the site.

**Response:** A copy of the health and safety plan was offered to the Fire Department, and their collaboration on it was welcomed. In addition, they were offered a key to the trailer where special fire-fighting equipment would be stored. It was pointed out that the DEP emergency unit is available on a 24-hour basis.

**Comment:** A question was raised about responsible party pursuit, and an offer was made to review observations of landfill operations during its active period.

**Response:** The principal sources of information are the 1976 State Industrial Survey and a similar study conducted by the federal government in 1980. Activities conducted by the NJDEP as a follow-up to the public meeting included briefing the Parsippany-Troy Hills Fire Department on the Emergency Response Plan, as well as informing them of planned well-drilling, etc., and consultation with Mrs. Dorothy Jurgel, a resident of New Road regarding past operating procedures at the landfill. In January 1985, Mr. and Mrs. Jurgel submitted a 27-page compilation of information on the Sharkey Landfill including news articles, letters, ordinances and regulations, photographs and personal notes (see Attachment C).

## **II. Summary of Major Questions/Comments Received During the Public Comment Period and NJDEP's Responses**

On August 13, 1986 the RI/FS was placed in the following repositories for public review: East Hanover Municipal Building, Parsippany-Troy Hills Municipal Building, Morris County Public Library in Whippany, Parsippany-Troy Hills Public Library, East Hanover Public Library and the NJDEP, Division of Hazardous Site Mitigation in Trenton. NJDEP issued a press release and contacted local officials, as well as interested citizen groups regarding the availability of the RI/FS at these repositories.

On August 21, 1986 NJDEP held a public meeting to present the results of, and receive comments/questions regarding the RI/FS. Notification of the meeting was accomplished through press releases and direct mailing of notices to local, state and federal officials, as well as concerned citizens and citizen groups (see Attachment D). Approximately 30 people attended the meeting, and each received an agenda, fact sheet, an overview of the community relations program and a paper copy of the slides used in the contractors presentation. (attendance sheet and hand-out, see Attachment E). The public comment period was held from August 13, 1986 through September 2, 1986. In addition to the comments made during the public meeting, four letters were received by the Department during this period (See Attachment F).

During the public meeting, Dr. George Kehrberger of Alfred Crew Consulting Engineers presented six remedial alternatives for long-term site remediation.

These are:

- No action, except long-term monitoring;
- Long-term monitoring, erosion control, site security and covering exposed areas;
- Long-term monitoring, erosion control, site security and a multimedia cap;
- Long-term monitoring, erosion control, site security, a multimedia cap and containment barrier;
- Long-term monitoring, erosion control, site security, a multimedia cap and pumping and treatment of ground water; and
- Excavation and removal of waste materials.

SHA 001 2168

Richard Salkie, Acting Director of NJDEP's Division of Hazardous Site Mitigation, then discussed NJDEP's recommended alternative which includes site security and access, erosion control and shoreline stabilization, capping, gas collection system, storm water control and long-term monitoring of the site. Comments and questions were then received from the audience. In addition to Director Salkie, and Dr. Kehrberger, representatives assisting with the RI/FS of P.F. Wright Associates, HydroQual and Hazen and Sawyer were present and responded to questions relevant to their areas of expertise.

#### Questions and Comments from the August 21, 1986 Public Meeting

Note: Subsequent to the August 21, 1986 public meeting, the NJDEP has been in consultation with the USEPA at Region II and Headquarters in Washington, D.C. The USEPA has requested the NJDEP to recommend additional remedial measures for an extra margin of control of contamination release based upon documentation of waste disposal at this site. These additional measures included implementation of a ground water recovery and treatment system and capping fill areas to meet federal Resource Conservation and Recovery Act (RCRA) requirements. From this landfill. The responses to comments below are as given at the public meeting and represent NJDEP's position on August 21, 1986.

In general, the tone of the public comments was very positive. Several individuals, including Parsippany-Troy Hills Mayor Frank Priore and Dr. Daniel Van Abs of the Passaic River Coalition, expressed that they were "pleased" and "relieved" at the findings of the study. The Mayor stated that he realized that excavation and removal were unrealistic, and felt that the recommended alternative was "ambitious". There were, however, some areas of concern raised, and these are summarized by subject as follows:

- Movement of contamination off-site;
- Sampling results and laboratory procedure;
- Police officers' use of pistol range on-site;
- Concerns of the Fire Department;
- Methane gas recovery;
- Responsible party involvement; and
- Other issues.

#### Movement of Contamination off-Site

The primary concern expressed at the meeting was the possibility that contamination was present at the landfill but had not yet moved through the fill and into the aquifer. Residents were assured that the long-term monitoring program recommended by NJDEP would detect any such movement of contaminants.

Comment: What if the chemical wastes were deposited on the landfill during its "warning years" of operation and are just now working their way down through the 80 feet of fill?

Response: That is a possibility, and the long-term monitoring program is set up for just this reason; to detect any contamination moving into the ground water from the landfill. This monitoring would be conducted on a semi-annual basis for 30 years.

**Comment:** Was the sampling done at various levels? I'm concerned that in your drilling, you might have drilled right through something instead of actually sampling it.

**Response:** Monitoring wells were installed in the lower regions of the shallow aquifer. The wells were screened in the shallow aquifer and evacuated three times to insure a representative sample of the shallow aquifer.

**Comment:** Was there any analysis of soil borings and were any samples of the aquitard taken?

**Response:** The plan was to use a Photo Ionization Detector (HNU Meter) to scan soil borings for the presence of organic contaminants. If we had gotten any positive readings, we would have then taken the sample(s) back to the lab for further analysis. We did not experience any positive readings.

**Comment:** Capping makes a lot of sense. I'm concerned, however, that the possibility still exists that wastes are in the fill and haven't yet migrated. With this cap, could they still leave the site?

**Response:** The greatest potential for the leachate to migrate from the landfill occurs during the 2-3 year period after the capping, when the landfill is being drained. Again, that is the reason for our semi-annual monitoring program. In the event any leachate was leaving the site, our monitoring program would detect it. (see NJDEP's Revised Recommended Alternative p.10)

**Comment:** We (the Passaic River Coalition) recommend that the possibility of ground water treatment be left open, in case contamination is detected.

**Response:** That is exactly what we are planning. We would develop a monitoring system and if any problem were detected, we would then put in a ground water treatment system. (see NJDEP's Revised Recommended Alternative p.10)

**Comment:** Will this monitoring program be looking only for certain gases and metals?

**Response:** We would be looking for the whole range of Priority Pollutants.

#### Sampling Results and Laboratory Procedure

**Comment:** You are saying that the consultant found contamination at the site, then the state sampled again and found none. How is this explained?

**Response:** We were concerned when some of the wells in the area showed contamination, so the state sampled a second time. The second set of sampling didn't show what the first set did. It is difficult to draw conclusions based on this. Laboratory procedures could account for the difference. It is not unusual to have contamination levels of 10-20 ppb in the samples themselves as a result of laboratory procedures. In a number of cases we found contamination in the blanks. For these

reasons, we will conduct a third round of sampling to confirm our earlier results.

Comment: If there was laboratory interference, could the state use a different laboratory?

Response: The second round of sampling did go to a different laboratory for just that reason.

Comment: Have the results of the second round of sampling on the Eomestead Well been forwarded to the East Hanover Township Water Department?

Response: No, we received them two days ago and they must go through our Quality Assurance program. After that, they will be sent.

Comment: Did NJDEP do this testing?

Response: No, a private laboratory conducted the testing.

Comment: What is the time frame for the third round of sampling?

Response: Some samples have already been collected; the others will be collected shortly.

#### Police Officer's Use of Pistol Range On-Site

Comment: As you know, the police department has a pistol range on the site. We want "the bottom line" - are our officers safe to go onto the landfill?

Response: Of the areas we sampled, we found no significant contamination in the soils or aquifer. We are recommending additional sampling even though we don't feel there is a problem. The only time we were concerned was when we were drilling wells. The fence is primarily to keep out children who might get in and damage the cap or get into the leachate.

#### Concerns of the Fire Department

Comment: As Assistant Chief of the Fire Department, I'm concerned about a methane fire bursting through the cap.\* How much damage would we do to the cap if we had to go in and put out a methane fire?

Response: The vents along the trenches would collect the methane. This is a passive system and we don't foresee a problem with methane coming through the cap.

Comment: Is there any danger in going on the site, and if not, why is there a decontamination zone? Should we decontaminate our equipment?

Response: The decontamination zone was used primarily during our field investigation. It is a routine procedure to assure that while we are investigating the site we do not bring any contamination onto the site or take any out. We assume that you would use normal fire-fighting precautions, but there are no plans for fire-fighters to decontaminate their equipment.

\*The issue of methane gas at the site is addressed separately in this responsiveness summary.



**Comment:** If there was a fire and we had to go in and put it out, is there someone we would have to notify or contact?

**Response:** The police know the combination to the locks and in the event of a fire, you would just go right in. We would like to be notified, but not if it is going to delay you in performing your duties.

At this point a member of the audience asked the Assistant Fire Chief if there had been any recent fires at the site. He responded that none had been reported; perhaps there were underground fires he was not aware of. Director Salkie pointed out that the investigation would have revealed any underground fires, if there had been any.

#### Methane Gas Recovery

**Comment:** What are the quantities of methane gas? The town might be interested in recovering it for use in the incinerator at the sewage treatment facility.

**Response:** We believe that at this point, 14 years after the landfill operated, most of the biological activity has already taken place, and there are no significant levels of methane gas. We did not encounter any methane on the surface, and only small amounts when we were drilling.

**Comment:** What about the bubbling in the ponds?

**Response:** This is normal anerobic activity. We monitored the ponds and found no contaminants of any degree.

#### Responsible Party Involvement

General interest and concern was expressed regarding the party or parties involved in bringing the wastes into the landfill, particularly Ciba-Geigy, and the state's pursuit of extracting payment from the responsible party.

**Comment:** How did Ciba Geigy move this material in? Was it liquid, solid, in barrels, or what?

**Response:** We have no records of how it got there or where it was put on the landfill. We have no records of whether it was dry, liquid, etc.

**Comment:** Did you find any barrels during your investigation?

**Response:** No.

**Comment:** Who was responsible for what was coming into the landfill? Weren't there any standards?

**Response:** The problem is at that time - 1945 to 1974 - when Sharkeys operated, there were very few standards. The NJDEP was not formed until 1970.

(Note: The following answer was not provided at the public meeting. It is expanded here to provide clarification.)

Basically the landfill operator is responsible for what comes into a landfill although the generators do bear the liabilities of their waste and past disposal practices.

Landfill regulations began on July 1, 1958 when the New Jersey Department of Health Regulations were put in effect under Chapter VIII of the State Sanitary Code. Operational procedures (i.e. dust control, scavenge control etc.) were the focus of this early regulations. When the NJDEP was formed in 1970, Chapter VIII was expanded. Effective July 1, 1970 the NJDEP began registration, permitting and were requesting engineering design reports including slope design, capacity and categories and amount of waste accepted during the previous year. Haulers had to be registered and proper labeling and "bills of lading" were to accompany shipments of hazardous and chemical wastes. Chapter VIII continued to evolve. In 1976 landfills began to be regulated by the type of waste that could be accepted by waste classifications indicated on landfill permits.

Comment: So the only way you would ever know what was dumped is if someone came out and admitted it?

Response: We do have some records, but they are limited. Early records are non-specific and it is difficult to determine in some cases what was dumped in the past. Certainly if someone admits to disposing material, that is a key indication of what was dumped and when.

Comment: Who will pay for this remedial alternative?

Response: Superfund monies will be used. If Superfund is not reauthorized, state funds would then be used.

Comment: What about trying to get the responsible party to pay?

Response: At this point, I can only say that we would use public funds - either Superfund or state. The enforcement process usually involves litigation and we're not at liberty to discuss this aspect of the case.

Comment: I feel the state is responsible since they allowed this landfill to operate.

Comment: From my experience (working with EPA) it seems like any involvement on the part of Ciba-Geigy indicates a potential for dioxin or dibenzo-furans. Has this possibility been investigated?

Response: We have no reason to test for the potential presence of dioxin or dibenzo-furans at this site. We do have a list of chemicals disposed at this location by Ciba Geigy. That list provides no indication that the presence of dioxin or dibenzo-furans would be expected.

#### Other Issues

Comment: With the recommended alternative, would all five fill areas be capped?

Response: At this point, three would definitely be capped. At the other two areas, no contamination was found. One of these areas is a wildlife preserve. We will study and monitor these areas further. If no

contamination is found, it may not be necessary to cap them. (See NJDEP's Revised Recommended Alternative, p.10)

**Comment:** What is the cost of the recommended remedial alternative?

**Response:** Approximately \$21 million to cap all five areas, and approximately \$16 million to cap three areas. (see NJDEP's Revised Recommended Alternative, p.10)

**Comment:** Is NJDEP responsible for all 90 acres of the site?

**Response:** The actual landfill is larger than 90 acres. The fill areas comprise 90 acres. Of that, 70 acres have been found to have some levels of contamination.

**Comment:** What is the time frame for this project?

**Response:** After we will receive your comments, we will prepare a responsiveness summary, sign a Record of Decision and come up with a remediation design. That whole process takes about six months. The design phase lasts approximately one year, procuring a contractor takes approximately three months, and the construction phase takes approximately two to three years. We would hope to have the landfill closed-cut in about four years.

**Comment:** What priority does this site have on your list?

**Response:** Each site is a separate project - we don't like to prioritize them. We hope to have enough money to clean-up all of our sites.

**Comment:** Could we ever build on top of this landfill?

**Response:** We would not recommend doing that. It is difficult to monitor if there is a building on top of the area. In the event that construction is considered at any former landfill operation in New Jersey, permits and approvals must first be obtained from NJDEP, Division of Solid Waste Management.

**Comment:** In the RI/FS you recommend the installation of four additional monitoring wells. Is one of these wells planned for installation in the clay depression found at this site.

**Response:** Yes, an additional monitoring well is recommended to be installed into that clay channel location.

### III. Remaining Concerns from the August 21, 1986 Public Meeting

In general, the community near the Sharkey Landfill was pleased and relieved at the results of the RI/FS. They regarded it as good news for the most part, and were especially relieved that their water supply does not appear to be threatened. The primary concern that remains is the potential for movement of contamination off-site. The citizens and officials of the community have been assured by NJDEP that a long-term monitoring program will be in effect at the site for 30 years. Any movement of contamination

which threatens their water supply would be detected and acted upon in a timely manner.

**IV. NJDEP's Revised Recommended Alternative**

The revised recommended alternative presented below will provide an extra margin of control for contamination release from this landfill at a cost of approximately \$28.1 million. The components of this alternative are:

**V. Summary of Major Written Questions and Comments Received during the Public Comment Period and NJDEP's Responses.**

**Responses to Written Comments Received**  
**During Public Comment Period**  
**August 13, 1986 to September 2, 1986**

During this public comment period two packages of extensive written comments were received. One package contained three letters discussing and supporting of the same issue and will be referred to as one commenter.

In general, both commenters addressed the fact that the RI adequately evaluated and characterized the nature of contamination and hydrogeology at this site. They both agree that this site presents no significant contamination and thus minimal risk to the public or environment. One commenter primarily directs his comments towards the result of the effects of the FS on the Northwest (North of Route 280) Fill area, while the other commenter is concerned with the overall scope of the project and its cost-effectiveness.

The written comments have been listed according to the five following categories:

- Site Characteristics and Classification
- Adherence to Regulatory Obligations
- Effectiveness of the Remedial Alternatives
- Recommendations for Alternatives
- Future Site Development

Each comment will be considered prior to selecting a final remedial alternative and is accompanied by NJDEP's and/or EPA's response, and the position concerning long-term remediation at this site.

**Site Characteristics and Classification**

**Comment:** The data (RI/FS) clearly indicates that the site represents a typical municipal solid waste landfill and identified organic compounds are ubiquitous in household products. The leachate from the Sharkey Landfill represents a typical municipal solid waste leachate that should be addressed within the context of sanitary landfill regulatory requirements.

**Response:** Documents show that hazardous wastes were dumped at the site. Therefore, the landfill is considered a hazardous waste site. Contamination has been found at low concentrations in the shallow aquifer and in the Rockaway and Whippany Rivers.

- Comment:** Although, industrial waste may have been received by the landfill, there is really nothing about the leachate or contaminated groundwater which could not be attributed to a municipal solid waste leachate. In fact, the character of the leachate is indicative of an older well leached sanitary landfill which, of course, the Sharkey's site is.
- Response:** The presence of hazardous wastes on-site creates a potential for migration and possible exposure to humans. Lack of high levels of contaminants in leachates does not rule out presence of chemicals on site.
- Comment:** In the preparation of the site wide water budget there is an apparent error in the calculation of the volume of groundwater moving through the clay aquitard.
- Response:** We do recognize that an error was made in calculating this figure. The correct figure of 860 gpd should replace 100 gpd on page 3-108 of the RI. We also agree with your evaluation that the correct volume (rate) is still a small percentage of the total flow.
- Comment:** The piezometric surface contour maps for the water bearing zone presented in the RI report are quite unusual for a relatively high permeability, confined aquifer and must be considered suspect.
- Response:** The piezometric surface contour maps were developed using the data obtained from the field. Groundwater level was measured at each of the 26 monitoring well locations. The data was plotted on a scaled site map, and interpolation was used to draw the contour lines. The NJDEP and EPA believe that the data substantiate the contours as shown.
- Comment:** Because the site is essentially a sanitary landfill, (Ciba-Geigy Corporation generated only a tiny fraction of the material disposed of at Sharkey's, less than one ten thousandth of the total, with the bulk of the remainder being municipal waste) it is highly unlikely that it will ever contaminate drinking water supplies.
- Response:** The site is classified as a hazardous waste site, as explained in prior responses. Although, no contamination has been detected at present in the drinking water supply, the site is classified as a hazardous waste site, as explained in prior comments. A potential release of contaminants may cause contamination of the drinking water supply in the future.

The amount of hazardous waste dumped by Ciba-Geigy at the site exceeds the maximum allowed in a sanitary landfill, even though the total amount of hazardous waste may be considered a small percentage of the total amount of solid waste in the entire landfill.

**Comment:** The risk to drinking water at a more distant site would be even smaller, since it is well established that all groundwater transport involves substantial dilution.

**Response:** We agree that the risk of contaminant exposure to drinking water is diminished through various mechanisms (i.e. bio-degradation, absorption, dilution). However, consideration must be given to the degradation of groundwater quality at the site as well as to the risk presented at distant drinking water sources.

#### Adherence to Regulatory Obligations

**Comment:** Is the "Superfund" to be applied the closure of a relatively innocuous sanitary landfill site?

**Response:** "Superfund" is not to be applied to the closure of an "innocuous landfill site", but "Superfund" may appropriately be used in the closure of this site. At this site, the selected alternative was based on the results of the RI/FS and documents supporting the hazardous waste dumping. Sharkey Landfill is an open dump as defined in 40 CFR Part 207, "Criteria for Classification for Solid Waste Disposal Facilities and Practices." RCRA, Section 4005(a), which is relevant and appropriate to this site, states that dumps should be closed properly. A proper closure, including a multimedia cap as discussed in the ROD is eligible for federal funds.

**Comment:** The Department's contractor excluded that option (groundwater treatment without capping), which might be more cost-effective than a cap because of its perception that state landfill regulations preclude that alternative. That perception may be incorrect and is not dispositive as to the selection of alternative under CERCLA.

**Response:** The USEPA Feasibility Study Guidance recommends that alternatives be developed that satisfy the five criteria as listed on page 2-5 of the Task 6 report "Evaluation of Alternatives". These criteria were followed in the study. The alternative of ground-water treatment without capping was included in the screening of alternatives and rejected.

**Comment:** The State Action Level II figures for organics in drinking water contained in the January, 1986 NJDEP Drinking Water Guidance would also be met by such a 10-fold dilution (downstream or away from the site). In that regard, the decision of the contractor to use Action Level I for the Guidance as appropriate state standards for drinking water is clearly erroneous as a matter of law. Existing drinking water systems in current use throughout the state are not legally compelled to meet Action Level I concentrations; it makes no sense to require that the water in a landfill do so.

**Response:** The use of Action Level I figures for organics in drinking water was appropriate as a measure of comparison to applicable and relevant guidance. We agree that recommending remedial action (other than monitoring) based on Action Level I concentrations is inappropriate. The NJDEP did not recommend remedial action based on those levels.

**Comment:** The Department's contractor assumed that any landfill closure is required by the Department to meet current landfill closure requirements. If this view is correct, even landfills which were closed prior January 1, 1982 must meet the standards of N.J.A.C. 7-26 Subpart 2, which implement the State's Solid Waste Management Act.

**Response:** It is NJDEP and USEPA policy to implement remedial actions at Superfund sites that attain or exceed the relevant and appropriate requirements of environmental laws and to consider other criteria, advisories, guidance and standards. Within this policy, NJDEP considers current state landfill standards relevant to this site. We do not intend to imply that all landfills closed prior to January 1, 1982 must meet the standards of N.J.A.C. 7-26, Subpart 2.



### Effectiveness of Remedial Alternatives

**Comments:** To what standard of clean-up are we to address the remedial action?

**Response:** This question is not relevant here. The system at this site is containment system to control future migration of hazardous substances from the site. In contrast, a clean-up standard is appropriate, for example, when contaminated soil is removed.

For this site, discharge standards for the options involving groundwater treatment pursuant to New Jersey Pollution Discharge Elimination System permits or local industrial pre-treatment standards will be used. This remedial action addresses the objectives identified on pages 124-125 of the Task 6 report.

**Comment:** How are the various alternatives to be compared so that their effectiveness in meeting the standards can be judged?

**Response:** For a containment system, the alternatives are compared to each other based on reliability, implementability, safety, environmental and public health impact, institutional requirements and cost. The comparison is used in fulfilling the remedial objectives and the requirements of the law.

**Comment:** The cost-effectiveness analysis presented in the Feasibility Study does not conform to the methodology presented in the Cooperative Agreement for the site dated December 26, 1983.

**Response:** The Cooperative Agreement (CA) between NJDEP and USEPA pertains to a preliminary scope of work and costs, which are subject to revision and negotiation. The methodology proposed in the CA may not reflect the actual method used by the contractor since the award of a contract is based in the actual proposal of the contractor and subsequent negotiations between the contractor and NJDEP. The actual cost-effectiveness methodology used complies with the requirements of the National Contingency Plan (NCP), 40 CFR 300.

**Comment:** The method by which the effectiveness ratings have been assigned is clearly subjective and arbitrary, and lacks a sound technical basis.

**Response:** The effectiveness ratings were assigned in a consistent manner and reflect sound professional judgment. The effectiveness ratings are one factor among many others used to select the remedial alternative.

**Comment:** The suggested remedy does not meet the cost-effectiveness requirements of the National Contingency Plan.

**Response:** The Alternative 5-A(b) complies with the cost-effectiveness requirements of the NCP.

**Comment:** Certainly, neither CERCLA nor the NCP require that the cost-effectiveness alternative identified in the FS by the contractor be adopted. To the contrary, the lead agency has a legal obligation to make its own determination of cost-effectiveness, and select the alternative which adequately protects the public interest at the lowest cost. If a remedial alternative was selected based on the ordinary cost-effectiveness method used by the contractor, the decision would be arbitrary and capricious and out of keeping with the standards for decision making under well understood principles of federal and state administrative law.

**Response:** USEPA made a determination of the cost-effectiveness of the remedial alternative which adequately protects the public interest at the lowest cost. USEPA in consultation with NJDEP used the RI/FS as a basis for selecting the appropriate remedy for this CERCLA site. In addition, the decision was based on the comments received during the public comment period.

#### Recommendations for Alternatives

**Comment:** It is the position of the commenter that the property (Northwest (N) Fill) should not be affected by the selected remedial alternative or long-term site clean-up and excluded from the effect of any further action by the NJDEP and USEPA. We also request that this parcel be removed from the Sharkey Landfill designation on the NPL.

**Response:** Based on the information available, the Northwest (N) Fill may not appropriately be removed from the Sharkey Landfill designation on the NPL. As explained in the ROD, this site presents a threat of release of hazardous substances. It is unlikely that this property can be excluded from the selected alternative

for remediation unless the owner presents USEPA with a plan for the use of the property that clearly provides a level of protection equal to or greater than the selected remedial alternative.

**Comment:** The data (RI/FS) clearly indicates that the site represents a typical municipal solid waste landfill. We concur with the conclusion of the RI report that this site represents minimal risk to the public health and environment and is clearly a candidate for a "No Action" or a "Minimal Action" remedial program.

**Response:** The location of the site, the length of time required to implement corrective action for a future release and the potential threat to the public health were considered in the selection of alternatives as explained in previous responses. For these reasons, a No Action or Minimal Action Alternative will not provide adequate protection for human health and the environment.

**Comment:** In the absence of a quantitative Risk Assessment, the FS has failed to demonstrate a significant risk to the environment or to the public health. Accordingly, selection of a costly remedial action has not been shown to provide demonstrable benefit to the environment or public health and is not supported by the evidence.

**Response:** While the contaminants detected at present at the site pose little or no environmental and public health risk at current concentrations, there is a potential threat of release which cannot be quantified. Since documentation shows hazardous waste was disposed of at the site, there exists a threat of a future release of these substances. The selected alternative addresses the potential threat of release.

**Comment:** Since the site poses no substantial present risk, relatively modest remedial measures are all that is required, and the expenditure of vast sums at the site would be wasteful. The best approach would be one involving site stabilization (North and South sites to prevent erosion) and access control (deleting requirement for access control at the two Northwest and Southwest sites) coupled with continued monitoring and contingency plans for capping or groundwater treatment, re. a modification of Alternative 2.

**Response:** It is agreed that the expenditure of vast sums of money at this site would be wasteful. The selected alternative is consistent with health and environmental concerns and not excessive in cost.

As explained in previous responses, the site has been classified as a hazardous waste site and the Minimal Action Alternative will not adequately protect human health and the environment. Furthermore, in the long-term monitoring program designed to sample every six months, a potential release of contaminants could be detected six months after its occurrence. After such a release of contamination was detected, the process for construction of a cap would take three years to complete. A contingency plan which would take three and a half years to be implemented is not acceptable because of the risk posed to the public health and the environment.

**Comment:** No one's interest is served by the expenditure of greater amounts of money at a particular site than are necessary to protect fully the health and the safety of the public, whether those funds are provided from "Superfund" or by potentially responsible parties.

**Response:** We agree.

**Comment:** A pump and treat alternative without capping deserves favorable consideration in light of the possibility that future monitoring would show that additional remedial measures are needed. The capital cost and operating cost calculated for the pump and treat portion of Alternative 5 (FS pp B-12, B-13) suggest that the total cost of collecting and treatment might be substantially less than the cost of capping alone, depending on the extent of the pumping program and the degree of treatment.

**Response:** As explained in the ROD, the closure of Sharkey Landfill is governed by RCRA. Closure requires a cap in accordance with the proper requirements. The implementation of groundwater treatment without capping is an incomplete measure which will allow water to infiltrate through the landfill, carrying potential contamination to the aquifer.

**Comment:** It is true that the quantity of groundwater requiring treatment of the entire site would be greater under an alternative involving no-cap than the contractors estimate for Alternative 5 with a cap. However, the

cost would not necessarily be greater. The RI indicates that concentration levels are the highest at the North Fill site (RI pp 3-114 to 3-117). Accordingly, if pumping ever became necessary, it may be needed only at the North site.

**Response:** The alternative of treating the groundwater with no-cap not only increase the quantity of groundwater to be treated, but may carry contamination to the shallow aquifer. The alternative of no capping is not as reliable as the selected alternative.

In addition, as explained in prior responses, the entire site is considered to contain hazardous wastes. Although concentrations of hazardous substances were higher in the North Fill area, the other four areas cannot be excluded for groundwater treatment.

**Comment:** A capping alternative is unnecessary and would be excessively expensive. Before any cap alternative is adopted, the Department should take into account the degree to which Alternative 2 reduced the need for Alternative 3. In the event that a cap remedy is chosen, the Department should restrict capping to the North and South Fill sites. Imposing an expensive capping remedy at the Northwest and Southwest sites can only be justified if, following the investigation, it could be said that they properly form a portion at the Superfund site. In addition, the Department should defer a choice between a clay cap and the less costly synthetic cap until the design phase.

**Response:** As stated before, the use of a cap is necessary for the proper closure of the entire site, and capping cannot be restricted to the North and South Fills. Photographs show fill activity in the Northwest Fill until somewhere between 1961 to 1966. During this period, hazardous materials from Cieba-Geigy are believed to have been disposed of in an undefined area of the site. Southwest Fill was used by the Department of Transportation to dump excavated material containing hazardous waste from the Northwest Fill during the construction of Route 280 from 1971 to 1974.

In addition, the cap with synthetic liner was considered in the evaluation of alternatives. This cap is not as reliable as the clay cap. A synthetic liner does not meet the requirements for a hazardous waste site.

**Comment:** Adopting an alternative which may not withstand legal scrutiny could result in either (i) a substantial delay in implementing a remedial program for the site or (ii) the inability of the government to obtain full, much less prompt, cost recovery because an unnecessarily expensive alternative was picked.

**Response:** The alternative of capping and treating the groundwater meets all applicable requirements and is the most cost-effective alternative. The selected remedial alternative satisfies the requirements of RCRA and the NCP. There is no pre-enforcement review of action taken under CERCLA. Therefore, no delay or inability of the government to obtain full cost recovery is expected.

**Comment:** One commenter reported that at the August 21, 1986 Public Meeting, he questioned Mr. Richard C. Salkie, Acting Director of the Division of Hazardous Site Mitigation in NJDEP, about capping option the NJDEP favored (all five areas or just the three with contamination).

**Response:** Director Salkie did not reply, as stated in this commenter's follow-up letter, that the Dowel Associates portion of the landfill was not being considered for remediation activity. Director Salkie did respond that three areas were likely to be capped.

Two areas were referred to by Dr. Kehrberger. He said no contamination was found in the Wildlife Preserve (Southwest Fill) and the Northwest (N) Fill. USEPA does not agree with the conclusion of Dr. Kehrberger. The results of the RI/FS indicate contamination in all areas; in Southwest Fill, concentrations are almost at standard levels.

#### Future Development

**Comment:** The proper development for this site (Northwest (N) Fill) provides superior environmental control for the property in question (Block 768, Lot 2 Parsippany-Troy Hills) than could ever be achieved by capping.

**Response:** There is no indication that the plan submitted for this development would provide the measure of protection over this entire fill area to control the potential for contamination release.

**Comment:** It is clear that the above referenced RI/FS did not conclude that the commentator's site is unsuitable for construction. In short, we would appreciate the NJDEP's consideration of the issuance of a letter to the commentator indicating that there is no impediment or objection to development of the site as proposed by the commentator and that further construction as proposed by the commentator will not interfere with the NJDEP's investigation and enforcement activities regarding the site.

**Response:** Based on the determination that this property (Northwest North Fill) represents a threat of release of hazardous substances requiring proper closure, this site is unsuitable for development and use as proposed.

**APPENDIX A-2**

**EXPLANATION OF SIGNIFICANT DIFFERENCES**



## **EXPLANATION OF SIGNIFICANT DIFFERENCES**

### **SHARKEY LANDFILL**

#### **Site Name and Location**

Sharkey Landfill  
Parsippany-Troy Hills and East Hanover  
Morris County, New Jersey

#### **Introduction**

The United States Environmental Protection Agency (EPA) presents this Explanation of Significant Differences (ESD) to explain the changes made to the remedy selected in the September 29, 1986 Record of Decision (ROD) for the Sharkey Landfill Superfund site. These changes relate to the landfill closure and ground water extraction portions of the remedy, and are the result of information obtained or developed subsequent to the 1986 ROD.

This ESD is issued in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. 9617(c), and Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300.435(c)(2)(i), which contain provisions for addressing and documenting changes that occur to a remedy after a ROD is signed. The ESD and documents which form the basis for the decision to change the response action will be incorporated into the Administrative Record for the site in accordance with Section 300.825(a)(2) of the NCP. The Administrative Record is available for review during normal business hours at EPA Region II, 26 Federal Plaza, New York, New York 10278, (212) 264-8770, and at the information repository near the site in the Parsippany-Troy Hills Public Library at 292 Parsippany Road, Parsippany, New Jersey 07054.

#### **Summary of Site History, Contamination Problems, and Selected Remedy**

The Sharkey Landfill site is approximately 90 acres in size and is divided into five separate fill areas: North Fill, South Fill, Northwest-North Fill, Northwest-South Fill, and Southwest Fill. The North Fill is an approximately 26-acre island in the Rockaway River located at the northern end of Sharkey Road in Parsippany-Troy Hills. The South Fill is an approximately 32-acre area adjacent to the Rockaway and Whippany Rivers and the Parsippany-Troy Hills wastewater treatment plant. The Northwest-North and Northwest-South Fills are about 11 and 15 acres in size, respectively, and were originally one fill area. The two fill areas were separated as a result of the construction of Interstate 280. The Southwest Fill is an approximately 9-acre area located along the Whippany River southeast of Ridgedale Avenue in East Hanover.

The site began operating in 1945 and accepted municipal waste material until September 1972. During that time, the landfill also accepted commercial, industrial, and hazardous waste materials. Records indicate that various organic compounds were disposed of at the site, including toluene, benzene, chloroform, dichloroethylene, and methylene chloride, in addition to other "liquid and/or chemical wastes" described as cesspool-type wastes. Although there have been allegations of waste disposal after 1972, the site is believed to have been generally inactive after that date, with the exception of excavation related to the expansions of the Parsippany-Troy Hills wastewater treatment plant.

In September 1983, the Sharkey Landfill was included on the National Priorities List of Superfund sites. A remedial investigation and feasibility study (RI/FS) was conducted from December 1983 to September 1986 to determine the nature and extent of contamination and to develop alternatives for remediating the site. The RI/FS found generally low concentrations of organic compounds, pesticides, and inorganic compounds in soils, and low levels of organic and inorganic contaminants in the shallow ground water at the site. Based on the results of the RI, EPA and the New Jersey Department of Environmental Protection and Energy (NJDEPE) established cleanup goals and objectives for the site. The goals and objectives were to 1) minimize the potential for migration of the low levels of ground water contamination, and 2) minimize the risks to the public from exposure to waste and contaminated soil on the site. To accomplish these goals and objectives, EPA selected a remedy in the ROD, signed on September 29, 1986, which included the following major elements:

- capping of the landfill in accordance with relevant Resource Conservation and Recovery Act requirements, including the appropriate grading of fill areas;
- a venting system for landfill gases;
- extraction and treatment of shallow ground water and leachate;
- surface water controls to accommodate seasonal precipitation and storm runoff as well as erosion control for river banks;
- security fencing to restrict site access; and
- an environmental monitoring program to ensure the effectiveness of the remedial action.

## **Description of the Significant Differences and the Basis for those Differences**

The differences between the remedy selected in the 1986 ROD and the actions described in this ESD relate to the landfill closure and the ground water extraction portions of the remedy. Other portions of the remedy selected in the 1986 ROD remain unchanged.

### **Landfill Closure**

The remedy selected in the 1986 ROD envisioned capping of the entire site based on information available at that time. However, during design of the selected remedy, it became apparent that full capping of all landfill areas was not necessary or appropriate. A reevaluation of site circumstances and conditions has resulted in a more limited capping scenario. As currently envisioned, only those portions of the North and South Fill areas having slopes of less than or equal to three horizontal to one vertical (3:1) will be capped. The remaining portions of these fill areas, as well as the three other fill areas, will be appropriately covered with soil and vegetated, as necessary.

The North Fill and South Fill areas have a much greater elevation relative to the surrounding areas, and have very steep side slopes. These side slopes allow a significantly higher amount of rainfall to run off than do the more mildly sloped top areas. This results in significantly less rainfall infiltration into the fill material through the side slopes, thereby reducing the generation of ground water contamination. Therefore, capping is less necessary on the steeply sloped areas than on the mildly sloped areas since one of the primary reasons for installing a cap is to reduce the infiltration of rain water into the waste material.

Some portions of the side slopes on the North and South Fill areas are already well vegetated. Capping the steep portions of these fill areas would destroy this vegetation which is providing natural soil erosion control. Removal of this vegetation followed by capping and planting of grasses and other shallow-rooted vegetation on the side slopes would not likely be more effective in preventing erosion into the waste material than the existing vegetation. By not capping slopes greater than 3:1, much of the existing vegetation will remain intact, and provide a more extensive base for deeper-rooted vegetation. Areas of the side slopes that are insufficiently vegetated will be covered with soil, as necessary, and will be appropriately vegetated to prevent erosion or exposure of the waste material. Erosion controls, such as terracing, gabions, and rip rap, will be employed as necessary to stabilize steeply sloped areas and other areas needing stabilization.

Because of their high elevations relative to the surrounding area, the North and South Fills have a significant amount of

waste material present above the ground water table in an unsaturated condition. In the currently uncapped state, rainfall infiltrates the mildly sloped areas and permeates through the waste material into the ground water. Capping the mildly sloped portions of these fill areas will limit the amount of water that can percolate through the waste material. This will also reduce the extent to which ground water will mound in the fill material. As an additional measure of control, a ground water extraction system will be installed to limit the migration of contaminants in the ground water from these fill areas.

Unlike the larger North and South Fill areas, the Northwest-North, Northwest-South, and Southwest Fill areas are relatively low-lying with much of their waste material lying below the ground water table or present under somewhat saturated conditions. Capping these low-lying areas would not effectively reduce the degree of contact between the waste material and the ground water. In addition, portions of these fill areas border established or emerging wetland areas. It is believed that capping these fill areas would cause significant adverse impacts to these wetland areas. Therefore, the Northwest-North, Northwest-South, and Southwest Fill areas will not be capped as described in the 1986 ROD, but will instead be covered with additional soil, as necessary, and appropriately vegetated to prevent erosion and exposure of waste material. As with the North and South Fill areas, contaminant migration in ground water from these three fill areas will be controlled, as necessary, through the operation of ground water extraction systems.

In addition to the extent of capping at the site, the type of cap will also be modified. The cap envisioned in the 1986 ROD included a two-foot clay layer to meet the performance requirements of the Resource Conservation and Recovery Act (RCRA) Subtitle C regulations which called for a multimedia cap with a permeability of  $10^{-7}$  centimeters per second. However, the ROD recognized that the cap did not meet the compositional criteria of the RCRA "model" cap in that it did not include a synthetic liner. The synthetic liner was not believed to be practicable given the steep slopes at the site. However, because the steep slopes will not be capped under the modified remedy, the use of a synthetic liner has been determined to be appropriate. In particular, the constructed caps will include a 30 mil (e.g., polyvinyl chloride) to 40 mil (e.g., polyethylene) impermeable synthetic liner.

Since the synthetic liner has advantages in terms of ease of installation, lower cost, and less weight, the modified cap will utilize a liner instead of the two feet of clay. The cap to be installed at the site will include 6 to 12 inches of soil suitable for membrane construction; a 30 to 40 mil impermeable synthetic liner; a minimum of 18 inches of cushion soil for drainage, including drainage piping as appropriate; a geotextile

separation layer, if necessary to prevent clogging of the drainage layer or to maintain separation of any layer; a minimum of 6 inches of topsoil suitable for vegetation; and the establishment of vegetative cover.

As part of the capping and covering efforts, surficial debris will be removed from all fill areas and appropriately disposed of prior to capping or covering. Further, any soils exhibiting a significant level of contamination (e.g., nickel-contaminated soil in an area of the Northwest-South Fill detected at concentrations ranging from 56,100 to 236,000 parts per million) which have been or are discovered at any of the fill areas will also be removed for appropriate off-site disposal.

#### Ground Water Extraction

Ground water extraction and treatment were included in the remedy selected in the 1986 ROD to minimize the potential for migration of the low levels of ground water contamination. As originally envisioned, the ground water extraction system was based on a series of perimeter ground water recovery wells to be constructed along a line parallel to the Rockaway and Whippany Rivers, bordering all five fill areas, and linked by a common trench along the pumping line. Additionally, the ROD recognized that the extracted ground water could be treated either on the site utilizing an air stripping system or at the adjacent Parsippany-Troy Hills wastewater treatment plant.

Information developed during the remedial design has indicated that a perimeter extraction system might not be as efficient as one utilizing more centrally located extraction wells, since the perimeter wells would likely withdraw a significant amount of river water in addition to ground water from beneath the fill areas. Therefore, the location of extraction wells will no longer be limited to the perimeter portions of the fill areas. Separate extraction systems will be installed in each of the five fill areas. In addition, the use of an on-site air stripping system is being retained as an option for treatment of extracted ground water along with the use of the Parsippany-Troy Hills wastewater treatment plant. If the Parsippany-Troy Hills wastewater treatment plant is used, it is anticipated that pretreatment of the extracted ground water will not be necessary. The Parsippany-Troy Hills wastewater treatment plant would be preferable since it could provide a more cost effective means of treatment than an on-site system, while providing a similar level of protection to human health and the environment.

A ground water monitoring program will be implemented at all five fill areas in addition to a surface water monitoring program for the Rockaway and Whippany Rivers. The purposes of the monitoring programs include assessing and monitoring ground water and surface water quality, determining the need for operation of the ground water extraction systems, and evaluating the effectiveness

of the extraction systems in establishing and maintaining hydraulic control.

Under the current scenario, a ground water extraction system will be installed in each of the five fill areas to provide hydraulic containment and prevent migration of contaminants out of each fill area when operating at design capacity. Once installed, the North Fill and South Fill systems will be operated continuously for a period of five years, regardless of the results of the ground water and surface water monitoring programs. The extraction systems at the other three fill areas will only be operated if monitoring results indicate such a need. After the initial five-year period, the need to operate the North and South Fill extraction systems will also be based on the results of the ground water and surface water monitoring programs.

The remedy selected in the 1986 ROD was estimated to have a cost of \$26 million at that time. The cost estimate was subsequently revised in 1991, during the remedial design, to \$64 million. The remedial approach described in this ESD is estimated to have a cost of approximately \$36 million. This constitutes a significant savings of funds which can be used at other sites.

#### **Support Agency Comments**

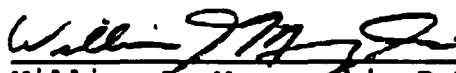
The State of New Jersey supports EPA's revision to the remedy and decision to issue this ESD.

#### **Affirmation of Statutory Determinations**

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA and NJDEPE believe that the remedy remains protective of human health and the environment, complies with federal and state requirements that were identified in the ROD and this ESD as applicable or relevant and appropriate to this remedial action, and is cost effective. In addition, the revised remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

#### **Public Participation Activities**

In accordance with the NCP, a formal public comment period is not required when issuing an ESD. However, EPA will announce the availability of the ESD in The Star-Ledger. The ESD has been placed in the Administrative Record for the site.

  
William G. Muszyński, P.E.  
Acting Regional Administrator

  
Date

APPENDIX B  
SCOPE OF WORK

**APPENDIX B  
STATEMENT OF WORK  
SHARKEY LANDFILL SITE**

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**B. REMEDIAL ACTION GOALS**

**C. DEFINITIONS**

**D. THE WORK TO BE PERFORMED**

**E. COMMITMENTS OF SETTLING DEFENDANTS**

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2. Cap for North and South Fill Areas
3. Soil Cover Requirements For All Fill Areas
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6. Groundwater Monitoring System
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1. Supervisory Professional Engineer
2. Project Coordinator

**G. REMEDIAL DESIGN**

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2. Remedial Design Work Plan
3. Approval of Remedial Design Work Plan
4. Remedial Design
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3. Photographs
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#### I. OPERATION AND MAINTENANCE

1. Notice of Completion and Final Report for O&M

#### J. LIST OF STATEMENT OF WORK (SOW) EXHIBITS

## **APPENDIX B**

### **STATEMENT OF WORK**

#### **SHARKEY LANDFILL SITE**

##### **A. PURPOSE**

This Statement of Work defines the response activities, including remedial design, remedial action, groundwater and surface water quality monitoring, and operation and maintenance, that the Settling Defendants shall perform at the Sharkey Landfill Superfund Site ("the Site") in Parsippany-Troy Hills and East Hanover, New Jersey. The activities described in this Statement of Work are consistent with the Record of Decision signed by the Regional Administrator, Region II of the United States Environmental Protection Agency ("EPA"), on September 29, 1986, as clarified and explained by the Explanation of Significant Differences for the Sharkey Landfill Superfund Site.

##### **B. REMEDIAL ACTION GOALS**

The goal of the remedial action is to ensure that contaminants shall not migrate from the Site in quantities or concentrations sufficient to cause an impact on the designated uses of the Rockaway or Whippany River. The Rockaway and Whippany Rivers are classified as FW-2 waters.

##### **C. DEFINITIONS**

Unless noted to the contrary in the Consent Decree or this Statement of Work, the terms used in this Statement of Work shall have the same meaning as assigned to them by the Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. §9601 et seq. Whenever the following terms are used in this Statement of Work, the following definitions shall apply:

"Decree" shall mean the Consent Decree for the Sharkey Landfill Superfund Site to which this Statement of Work is appended.

"SOW" shall mean this Statement of Work.

"NJDEPE" shall mean the New Jersey Department of Environmental Protection and Energy.

"Design Cap" shall mean the cap design shown on Exhibit D attached. Specific components of the Design Cap include the following: a) 6 to 12 inches of soil suitable for membrane

construction; b) 30 mil (e.g., polyvinyl chloride) to 40 mil (e.g., polyethylene) geomembrane liner; c) a minimum of 18 inches of cushion soil suitable for drainage, including drainage piping as appropriate; d) a geotextile separation layer, if necessary; e) a minimum of 6 inches of topsoil suitable for vegetation; and f) establishment of suitable vegetative cover.

"ESD" shall mean the Explanation of Significant Differences document prepared by EPA for the Sharkey Landfill Site which is attached to the Decree.

"Fill Area" shall mean any of the following five (5) landfills which are shown on Exhibit E attached and which collectively constitute the Sharkey Landfill Site:

- a. the North Fill;
- b. the South Fill;
- c. the Northwest-North Fill;
- d. the Northwest-South Fill; or
- e. the Southwest Fill.

"GWE" shall mean groundwater extraction.

"GWM" shall mean groundwater monitoring.

"Extraction Zone" shall mean a segment of a Fill Area consisting of one or more GWE well capture zones and monitored by approximately three to five GWM wells.

"North Fill" shall mean that portion of the Site which consists of an island in the Rockaway River approximately twenty-six (26) acres in size located at the northern end of Sharkey Road and designated as the "North Fill" on Exhibit E attached.

"Northwest-North Fill" shall mean that portion of the Site approximately eleven (11) acres in size located northeast of Route 280 and bounded by Edwards Road to the northeast, the Whippany River to the southeast, and a wooded area bordering New Road to the northwest, also known as the "Dowel Tract" or "HMAT" parcel and designated as "Northwest-North" Fill on Exhibit E attached.

"Northwest-South Fill" shall mean that portion of the Site approximately fifteen (15) acres in size bounded by the Whippany River to the south, Troy Meadows to the west and by Ridgedale Avenue to the northeast and designated as the "Northwest-South Fill" on Exhibit E attached.

"Performance Standards" shall mean those cleanup standards, standards of control and other substantive requirements, criteria or limitations set forth in the Record of Decision, as clarified and explained by the Explanation of Significant Differences, and the Statement of Work.

"PTH STP" shall mean the Parsippany-Troy Hills sewage treatment plant located immediately adjacent to the South Fill at the Site.

"River Chemical" shall mean any chemical listed on Exhibit C attached.

"River Trigger Level" shall mean the allowable concentration stated for any chemical listed on Exhibit C attached.

"Section" shall mean any portion of this SOW referred to by a capital Arabic letter.

"South Fill" shall mean that portion of the Site approximately thirty-two (32) acres in size located southeast of Sharkey Road, which is generally bounded on the east by the Rockaway River and Whippany River, on the south and west by the Parsippany-Troy Hills sewage treatment plant and includes an area northwest of Sharkey Road between two ponds and the Rockaway River and designated as the "South Fill" on Exhibit E attached.

"Southwest Fill" shall mean that portion of the Site approximately nine (9) acres in size located in East Hanover, and is generally bounded by Ridgedale Avenue to the northeast, a drainage ditch to the southeast, an unnamed tributary to the Whippany River to the southwest, and the Whippany River to the northwest and is designated as the "Southwest Fill" on Exhibit E attached.

"Target Compound List" shall mean the compounds listed on Exhibit A attached.

"Trigger Event" shall mean an event which requires that groundwater be extracted from some or all of the groundwater extraction wells at one or more Fill Areas and diverted to the PTH STP for treatment and disposal. A Trigger Event may be either a Type A Trigger, a Type B Trigger, or a Type C Trigger, as those terms are defined in Section E.13. of this Statement of Work.

"Well Chemical" shall mean any chemical listed on Exhibit B attached.

"Well Trigger Level" shall mean the allowable concentration stated for any Well Chemical listed on Exhibit B attached.

"Work" shall mean all activities the Settling Defendants are required to perform under the Consent Decree, including the attainment of Performance Standards, except for those required by Section XXVI (Retention of Records) of the Consent Decree.

["Settling Defendants" shall mean all signatories to the Sharkey Landfill Consent Decree listed in Appendix D, who are not "Cash-Out Parties" listed in Appendix \_\_\_\_ thereof.]

**D. THE WORK TO BE PERFORMED**

Subject to Paragraph 83 of the Consent Decree (the "reopener" provision), the Work to be performed under this Consent Decree shall consist of the following major components:

1. Remedial Design of the remedy selected for the Site (hereinafter referred to as the "Selected Remedial Alternative") described in the Record of Decision ("ROD") for the Sharkey Landfill Site, dated September 29, 1986, as explained and clarified by the ESD;
2. Remedial Construction of the Selected Remedial Alternative;
3. Operation and Maintenance ("O&M") of the Selected Remedial Alternative;
4. Monitoring groundwater and surface water quality beginning before the start of construction and continuing after Completion of Construction of the Selected Remedial Alternative; and
5. Designing, constructing, and maintaining a groundwater extraction system at each Fill Area which will ensure that, after Completion of Construction, groundwater at all Fill Areas can be extracted and treated at the PTH STP and will be extracted from applicable areas of the Site and treated whenever a Trigger Event occurs at any Fill Area or in the Whippany or Rockaway Rivers.

**E. COMMITMENTS OF SETTLING DEFENDANTS**

The Settling Defendants shall finance and perform the Work in accordance with the Consent Decree, including all tasks set forth in this SOW and all terms, conditions and schedules set forth herein or developed and approved hereunder. The Work shall be performed in a manner consistent with the ROD, as clarified and explained by the ESD, which sets forth requirements for this Work.

The major components of the Selected Remedial Alternative which the Settling Defendants shall finance, design, construct, monitor, and operate and maintain follow:

**1. Landfill Cover**

Settling Defendants shall provide cover over each of the following Fill Areas, as described in further detail in Section E.3. below:

- a. the North Fill;
- b. the South Fill;
- c. the Northwest-North Fill;
- d. the Northwest-South Fill; and
- e. the Southwest-Fill.

**2. Cap for North and South Fill Areas**

- a. The Settling Defendants shall install a cap of the type shown in Exhibit D attached to this SOW ("the Design Cap") on both the North and the South Fill.
- b. The Settling Defendants shall install the Design Cap on that portion of the North Fill conceptually shown on Exhibit F attached to this SOW. The area to be covered by this cap is approximately fifteen (15) acres.
- c. The Settling Defendants shall install the Design Cap on that portion of the South Fill conceptually shown on Exhibit F attached to this SOW. The area to be covered by this cap is approximately eighteen (18) acres.
- d. The following shall apply to the design and installation of the Design Cap required for the North and South Fills:
  - i. Cover soil shall be initially evaluated during design for stability. The analysis shall evaluate sliding of soil relative to a geomembrane liner for both saturated and unsaturated conditions using a typical-element force balance and typical membrane/soil properties found in the literature. If saturated conditions indicate an unacceptable safety factor against sliding, subdrainage controls will be incorporated into the cap design. Subdrainage flow will be evaluated using water balance data and a 25-year storm event.

- ii. A synthetic geomembrane cap made of a flexible material such as polyvinyl chloride, of at least 30 mil thickness, shall be placed on the top of the North Fill and the South Fill extending to the point where the area to be capped ends. The areas to be capped are conceptually generally depicted in Exhibit F.
- iii. Specifications for the cap materials will be developed during design. Such specifications shall include cushion soils, subdrainage soils, the membrane, and geotextile fabric. Cushion soils will be sufficiently compactable to provide membrane support and contain no objects or material that could damage the membrane. If the 6 to 12-inch soil cushion required by the Design Cap is insufficient to achieve this objective, a greater cushion will be required as deemed appropriate. The subdrainage layer shall be a granular material suitable for direct contact with the membrane with a minimum permeability approximately of  $1 \times 10^{-3}$  (0.001) cm/sec.
- iv. Soil thickness shall be evaluated to provide protection for the membrane during construction.
- v. A construction quality control program shall be developed that shall include such items as properties for soils, permeability testing for subdrainage layer soils, seam testing and properties verification of the membrane, and on-site observation with independent quality control testing. Construction shall be sequenced to provide ongoing subgrade preparation, membrane placement and cover soil placement. Temporary controls shall be employed during and after construction to minimize construction-related failures and damage, and to control soil erosion and sedimentation until vegetation is established.
- vi. A minimum of eighteen (18) inches of overlying cushion/drainage soil shall be placed on top of the membrane including any necessary drainage piping.
- vii. A final cover of six (6) inches of topsoil, suitable to establish vegetation, shall be placed on top of the cushion/drainage soil.

Suitable vegetation shall be established on the topsoil and maintained by the Settling Defendants.

**3. Soil Cover Requirements For All Fill Areas**

During Remedial Design, the Settling Defendants shall survey the Fill Areas and conditions thereon to determine the need for soil cover to be placed on all portions of the Fill Areas which will not be covered by the Design Cap. The need for soil cover and the depth of soil cover which will be required on all areas of the North Fill, the South Fill, the Northwest-North Fill, the Northwest-South Fill and the Southwest Fill, which are not otherwise covered by a Design Cap, shall be determined by the following criteria:

- a. no soil cover will be placed on areas where there is sufficient existing soil cover and well-established vegetation (i.e., well-rooted, healthy vegetation exists in at least six (6) inches of soil);
- b. a minimum of six (6) inches of soil cover will be applied where less than six (6) inches of soil is present and where there is no exposed fill, but some vegetation is established;
- c. six (6) to twelve (12) inches of soil cover will be applied where there is some small area of exposed fill, surrounded by areas characterized by (a) and/or (b), above, in order to bring the area up to grade;
- d. twelve (12) to twenty-four (24) inches of soil cover will be applied where there are areas of exposed fill surrounded by areas characterized by (a), (b) and/or (c), above, in order to bring the area up to grade; and
- e. A minimum of eighteen (18) inches and a maximum of twenty-four (24) inches of soil cover will be applied where there is a large area of exposed fill material. In all cases, soil cover must be sufficient to eliminate physical hazards from protrusion of waste materials.

EPA shall make the final determination regarding the application of the criteria outlined in Section 3.a through 3.e.



#### **4. Drainage and Erosion Controls**

Drainage and erosion controls shall be designed and constructed for areas subject to capping, covering, and areas of the landfill where erosion has occurred in the past or is likely to occur in the future. Erosion and drainage controls shall be designed to be appropriate to the location and type of erosion. Drainage and erosion controls will include consideration of diversion swales, structural containments such as gabion walls and retaining walls, localized regrading and sediment barriers. In areas of exposed refuse near river banks, the areas will be secured with erosion controls (e.g., gabions, riprap, or other appropriate controls to be defined in design); slopes and cliffs along river banks will be structurally supported and stabilized as necessary; other areas needing erosion control, such as the drainage channel on the Southwest Fill, will be secured with appropriate controls.

#### **5. Miscellaneous Requirements**

- a. Settling Defendants will use clean soil originating from source(s) located off the Site for soil cover at the Site.
- b. Settling Defendants shall install vegetation over all disturbed surface areas of each of the five (5) Fill Areas identified in Section E.1., above.
- c. Settling Defendants shall maintain, repair as necessary, and ensure the integrity of all caps, soil cover, erosion controls, and vegetation placed over each of the five (5) Fill Areas at the Site for thirty (30) years.
- d. Settling Defendants shall remove and appropriately dispose of all debris remaining on the surface of all Fill Areas.
- e. Settling Defendants shall clear, grub, recontour and/or regrade all Fill Areas, as necessary to place the cap, cover, and erosion controls as described in Section E. in order to implement any of the actions required by the ROD, the ESD, the Consent Decree or this SOW.
- f. Settling Defendants shall perform an engineering evaluation of gas venting requirements at all five (5) Fill Areas and shall design and install appropriate gas venting or control systems, if necessary, as deemed appropriate by EPA.

- g. If non-aqueous phase liquids (e.g., polychlorinated biphenyls) are encountered in any of the GWM wells, the non-aqueous phase liquid will be extracted and treated or disposed of by the Settling Defendants, as deemed necessary by EPA.
- h. Settling Defendants shall remove and appropriately dispose of the nickel-contaminated soil which is present in an area of the Northwest-South Fill, and other contaminated soils exhibiting a significant level of contamination which have been or are discovered at the surface of any Fill Area, as deemed necessary by EPA.
- i. Permits shall not be required for any removal or remedial action encompassed by Section 121 (e) (1) of CERCLA.
- j. Settling Defendants must apply for and receive a soil erosion and sediment control plan certification from the Morris County Soil Conservation District prior to beginning construction at the site, and shall abide by all requirements of said certification during construction.
- k. All waste deposits left on the Site shall be crushed or compacted sufficiently to prevent waste protrusion through soil cover and cap materials.

**6. Groundwater Monitoring System**

- a. The Settling Defendants shall install a total of approximately forty to fifty (40 to 50) GWM wells at the Site. In general, the GWM wells shall be installed at or near the outer perimeter of each of the Fill Areas; the precise locations will be determined during Remedial Design. GWM wells shall be installed so as to allow samples to be taken from the shallow water-bearing zone beneath the Site. A sufficient number of GWM wells shall be located hydraulically downgradient of each Fill Area to ensure, with a reasonable level of confidence, that any contaminants which may migrate in the shallow groundwater out of every Fill Area will be detected by analyzing samples taken from the GWM wells installed pursuant to this SOW. The design specifications of all GWM wells (constructed via NJDEPE standards and appropriate well permits) and the GWM system to be installed at the Site, including the following, shall be proposed by the Settling Defendants during the Remedial Design and shall be subject to approval by EPA:

- i. the number of wells to be installed at each Fill Area;
  - ii. the location of all GWM wells;
  - iii. the depths of all GWM wells; and
  - iv. the casing type of all GWM wells.
- b. Settling Defendants shall install a sufficient number of piezometers or similar devices to allow a determination of the effectiveness of hydraulic control of the GWE System (as defined below) for the North and South Fill Areas. The number of piezometers or other devices necessary to allow such a determination to be made will be developed during the Remedial Design and modified, as deemed necessary by EPA, during implementation of the Remedial Action, as approved by EPA.
- c. Following the Five-Year PT Period described in Section E.8., below, for the North and South Fills, and at anytime for the Northwest-North, Northwest-South and Southwest Fills, if pumping is performed in any areas of the Site, those monitoring wells affected by the pumping will be exempted from monitoring requirements until pumping ceases. Once pumping ceases, monitoring of such wells will again be required in accordance with Section E. of this SOW.

**7. Groundwater Extraction System**

- a. The Settling Defendants shall install a GWE system in each of the Fill Areas at the Site. The GWE system at each Fill Area is intended to act as a hydraulic containment to prevent migration of contaminants out of each Fill Area in the shallow water-bearing zone, when operating at design capacity.
- b. The GWE system at each Fill Area shall include, but shall not be limited to, the following components:
  - i. GWE wells;
  - ii. pumps and related equipment for extracting groundwater from every GWE well installed at each Fill Area; and
  - iii. a piping network and all other equipment and facilities needed for collecting all groundwater extracted at each Fill Area and conveying that groundwater to the PTH STP.

- c. The GWE system at each Fill Area shall be designed and constructed to meet the following objectives, among others:
- i. to withdraw groundwater from the shallow water-bearing zone beneath each Fill Area and transport that groundwater to the PTH STP for treatment and disposal;
  - ii. to prevent any groundwater containing any Well Chemicals from migrating out of any Fill Area at concentrations, averaged across the corresponding GWE Zone, exceeding the respective Well Trigger;
  - iii. to ensure that every GWM well at each Fill Area is located within the capture zone of one or more GWE wells;
  - iv. to prevent all waters in the shallow water-bearing zone beneath every Fill Area from migrating out of the Fill Area when the GWE system is operating as designed;
  - v. to allow selective operation of every GWE well at a Fill Area while some or all of the remaining GWE wells remain inactive;
  - vi. to allow all of the GWE wells at every Fill Area to pump and extract groundwater at their peak design capacity within an EPA-approved timeframe after a decision is made to activate the system; and
  - vii. to prevent any groundwater containing any Well Chemicals from migrating out of any Fill Area at a concentration greater than or equal to two times (2X) of the respective Trigger Level, measured in any GWM well.
- d. Each Fill Area shall be segmented into GWE Zones, consisting of one (1) or more GWE well capture zones and monitored by approximately three (3) to five (5) GWM wells.
- e. The design specifications of all GWE wells and the GWE system to be installed at each Fill Area, including well locations, well depths, casing designs, withdrawal capacity (yield), piping network(s) and pump characteristics, shall be proposed by the Settling Defendants during the

Remedial Design and shall be subject to approval by EPA.

**8. Five-Year Groundwater Extraction for the North and South Fill Areas**

After installation of the GWE system at the North Fill and the South Fill, the Settling Defendants shall operate all of the GWE wells at the North Fill and the South Fill to create a zone of capture that encompasses each Fill Area, twenty-four (24) hours per day, on a continuous uninterrupted basis, except for necessary downtime caused by system maintenance or breakdown, for a period of five (5) years ("the Five-Year Pump and Treat (PT) Period") in accordance with a schedule approved by EPA. The Settling Defendants shall pump and treat groundwater from both the North Fill and the South Fill throughout the Five-Year PT Period, notwithstanding the results of any GWM data which may have been collected at these two (2) Fill Areas before or during the Five-Year PT Period. All groundwater extracted from each of these Fill Areas during this Period shall be conveyed to the PTH STP for treatment and disposal. The extraction flow rate to be used during the Five-Year PT Period at each of these Fill Areas shall be proposed by the Settling Defendants during the Remedial Design and shall be subject to approval by EPA.

A report involving any downtime caused by system maintenance or breakdown shall be submitted to EPA within seventy-two hours (72) of such maintenance or breakdown along with the cause of the breakdown and the estimated time of repair.

**9. Treatment of Groundwater Extracted from the Site**

All groundwater or fluids of any type extracted from beneath any Fill Area pursuant to the requirements of this SOW or the Consent Decree shall be diverted to the PTH STP for treatment and disposal with appropriate pretreatment, as necessary. All waters diverted to the PTH STP shall be mixed with untreated influent from the PTH STP service area prior to treatment at the PTH STP and shall undergo the same level of treatment as all other influent to the PTH STP.

## **10. Groundwater Monitoring Program**

The Settling Defendants shall initiate a GWM program at each Fill Area after the GWM wells required by this SOW are installed. The GWM requirements relating to each of the Fill Areas are as follows:

### **Filter Size for Sampling Groundwater for Inorganic Analysis:**

Samples may be filtered utilizing no smaller than a two (2) micron filter.

#### **a. North Fill and South Fill:**

The GWM program for both the North Fill and the South Fill is structured into four (4) separate phases, which differ with regard to sampling frequency, number of samples to be analyzed each quarter (i.e., every three months) and other specifications. The Settling Defendants shall perform the activities described below for each of the following four (4) consecutive phases:

- i. **Baseline Phase:** Each GWM well will be sampled one time (1X) per month over a period of two (2) consecutive months immediately prior to the Five-Year PT Period. Samples collected from every GWM well will be analyzed for all Target Compound List chemicals and all Well chemicals each month so that after two (2) months of sampling is completed, each GWM well will have been sampled on two (2) separate dates for all Target Compound List chemicals and all Well chemicals.
- ii. **Five-Year PT Period Phase:** After the requirements for the Baseline Phase are completed, and for each and every year during every year of the Five-Year PT Period, the Settling Defendants shall collect a composite sample of groundwater being extracted from the North Fill before it is commingled with any groundwater from any other Fill Area and before it is conveyed to the PTH STP. The Settling Defendants shall do the same for groundwater extracted from the South Fill. Every sample collected during each year of this Five-Year PT Period shall be analyzed for all Target Compound List chemicals and all Well chemicals. A total of ten (10) samples

will be collected from groundwater extracted, five (5) from the North Fill and five (5) from the South Fill, from each of these two (2) Fill Areas over the Five-Year PT Period and each will be analyzed for all chemicals on the Target Compound List and all Well chemicals. This sampling and analysis shall be in addition to any sampling and analysis required by the PTH STP. All GWM wells and piezometers or other devices installed in the North and South Fill Areas will be monitored two times (2X) per quarter to determine groundwater elevations to demonstrate that the GWE wells are maintaining hydraulic control of the North and South Fill Areas.

- iii. **Third Phase (Second Baseline):** Immediately following the end of the Five-Year PT Period, the Settling Defendants shall sample each GWM well one time (1X) per quarter during a one (1) year period, for an annual total of four (4) samples in four quarters. Samples collected from every GWM well will be analyzed for all Target Compound List chemicals and all Well chemicals so that after one (1) year of sampling is completed, each GWM well will have been sampled on four (4) separate dates, one (1) each quarter, and all four (4) of these samples would have been analyzed for all Target Compound List chemicals and all Well chemicals. This monitoring program shall remain in effect for one (1) calendar year after the Five-Year PT Period ends.
- iv. **Long-Term Phase:** Starting immediately after completion of the requirements of the Third Phase, the Settling Defendants shall begin sampling each GWM well at both the North Fill and the South Fill one (1) time per quarter (four times per year). Three (3) of the samples collected at every GWM well each year shall be analyzed for all Well Chemicals; one (1) sample collected at each GWM well each year shall be analyzed for all Target Compound List chemicals and all Well chemicals. The Settling Defendants shall continue to monitor groundwater quality at all GWM wells located at each of the North and South Fill Areas each and every year pursuant to the requirements of the Long-Term Phase unless and until EPA modifies or waives this requirement in writing.

The Settling Defendants may petition EPA for a modification or elimination of the Long-Term Phase requirements to monitor groundwater quality conditions at the North and South Fills only after a minimum of four (4) consecutive quarters (one year) of sampling and analyses have been completed under the Long-Term Phase. EPA will re-evaluate the requirements for full TCL monitoring after ten (10) years have elapsed. At that time, EPA will reduce the frequency or scope of the TCL monitoring program associated with any individual Fill Area(s) if the previous five (5) TCL sampling events indicate that TCL compounds are not migrating, above trigger levels as described in Paragraph 13, from such Fill Area(s). EPA may increase the frequency of TCL monitoring, at its discretion, if such monitoring indicates that TCL compounds are migrating from any Fill Area(s). All modifications of any GWM requirements contained in this SOW must be in writing signed by the Deputy Division Director, Emergency & Remedial Response Division, EPA - Region II.

**b. Northwest-North Fill/Northwest-South Fill/Southwest Fill**

The GWM requirements for each of these three (3) Fill Areas is structured into two (2) phases. These are as follows:

- i. **Baseline Phase:** During this phase, the Settling Defendants shall sample each GWM well at each of the three (3) Fill Areas noted above one time (1X) per quarter for one (1) year, for a total of four (4) quarters and four (4) samples. Samples collected from every GWM well will be analyzed for all Target Compound List chemicals and all Well chemicals one time (1X) each quarter so that after one (1) year of sampling is completed, each GWM well will have been sampled on four (4) separate dates and all four (4) of these samples would have been analyzed for all Target Compound List chemicals and all Well chemicals. The requirements of this Baseline Phase are the same as those stated for the Baseline Phase for the North and South Fills in Section E.10.a.iii., above.
- ii. **Long-Term Phase:** Starting immediately after the end of the Baseline Phase, the Settling Defendants shall sample each GWM well at each



of the three (3) Fill Areas noted above one (1) time per quarter (four times per year). Three (3) of the samples collected at every GWM well each year shall be analyzed for all Well Chemicals; one (1) sample collected at each well each year shall be analyzed for all Target Compound List chemicals and all Well chemicals. The requirements of this Long-Term Phase are the same as those stated for the Long-Term Phase for the North and South Fills in Section E.10.a.iv, above. The Settling Defendants shall continue to monitor groundwater quality at all GWM wells located at each of these three (3) Fill Areas each and every year pursuant to the requirements of the Long-Term Phase unless and until EPA modifies or waives this requirement in writing.

The Settling Defendants may petition EPA for a modification of the Long-Term Phase requirements to monitor groundwater quality conditions at the three (3) Fill Areas only after a minimum of four (4) consecutive quarters (one year) of sampling and analyses have been completed under the Long-Term Phase. EPA will re-evaluate the requirements for full TCL monitoring after ten (10) years have elapsed. At that time, EPA will reduce the frequency or scope of the TCL monitoring program associated with any individual Fill Area(s) if the previous five (5) TCL sampling events indicate that TCL compounds are not migrating, above trigger levels as described in Paragraph 13, from such Fill Area(s). EPA may increase the frequency of TCL monitoring, at its discretion, if such monitoring indicates that TCL compounds are migrating from any Fill Area(s). All modifications of any GWM requirements contained in this SOW must be in writing signed by the Deputy Division Director, Emergency & Remedial Response Division, EPA - Region II.

**11. Confirmation Analyses for Groundwater Monitoring Program**

Where any analysis of any sample taken from any GWM well at the Site indicates that the concentration of any Well Chemical is greater than or equal to two times (2X) the Well Trigger Level set for that Well Chemical, Settling Defendants shall initiate groundwater extraction at all GWE wells associated with the GWE Zone(s) responsible for the exceedance, within an EPA-

approved timeframe, and divert the extracted groundwater to the PTH STP for treatment. Settling Defendants may obtain, analyze, and report the results of a supplemental sample, within the aforementioned EPA-approved timeframe, to EPA for consideration in determining the need for initiation of such groundwater extraction.

Where any analysis of any sample taken from any GWM well indicates that the concentration of any Well Chemical is greater than or equal to, but less than two times (2X), the Well Trigger Level set for that Well Chemical, Settling Defendants shall, within 30 days after receipt of the results of that analysis, collect, analyze, and report to EPA the results of another sample from the same GWM and analyze that sample ("a confirmation analysis") for every Well Chemical which the initial analysis indicated was at a level greater than or equal to the Well Trigger Level set for that Well Chemical.

The GWE wells at any Fill Area shall be activated pursuant to the requirements of Section E.13. of this SOW.

## **12. Surface Water Monitoring Program**

The Settling Defendants shall collect samples from and analyze water quality conditions in the Whippany River and the Rockaway River upstream, downstream and in the immediate vicinity of each of the Fill Areas at the Site. Water quality conditions shall be sampled at approximately ten (10) instream locations during each survey, as deemed necessary by EPA. Water quality samples shall be collected and analyzed at a minimum of one (1) station located upstream and one (1) station downstream from each Fill Area during each survey.

The surface water quality monitoring requirements for the Whippany and Rockaway Rivers are described below:

### **a. Rockaway River**

- i. Baseline Phase:** Each sampling station will be sampled one time (1X) per month over a period of two (2) consecutive months immediately prior to the Five-Year PT Period start. Samples collected from every sampling station will be analyzed for all Target Compound List chemicals and all River chemicals each month so that after two (2) months of sampling is completed, each sampling station will have

been sampled on two (2) separate dates for all Target Compound List chemicals and all River chemicals. Following the initial two (2) sample events, all stations not solely associated with the North and South Fill Areas will be sampled by the Settling Defendants on three (3) more occasions, equally spaced over the subsequent ten-month period. Samples shall be analyzed for Target Compound List chemicals and River chemicals.

- ii. **Five-Year PT Period Phase:** For each and every quarter during every year of the Five-Year PT Period, the Settling Defendants shall collect a surface water sample at each station not solely associated with the North and South Fill Areas. Every sample collected during the first quarter and the third quarter surveys every year during the Five-Year PT Period shall be analyzed for Volatile Organic Compounds (VOCs). Every sample collected during the second quarter and the fourth quarter surveys every year during the Five-Year PT Period shall be analyzed for all chemicals on the Target Compound List and all River chemicals. The calendar quarters (grouped as second and fourth, first and third) shall be rotated annually such that VOCs, river chemicals, and Target Compound List chemical analyses will have been performed in each quarter after a two (2) year period. Stations solely associated with the North and South Fill Areas shall be sampled for all Well Chemicals, River Chemicals and VOCs if the results of the water level measurements during the Five-Year PT Period fail to conclusively demonstrate hydraulic control of the North and South Fill Areas, based on EPA's determination.
- iii. **Third Phase (Second Baseline):** For four (4) consecutive quarters (one year) immediately after the Five-Year PT Period ends at the North Fill and the South Fill, the Settling Defendants shall collect surface water samples each quarter at each sample station in the Rockaway River. Each sample collected at each station shall be analyzed for all Well Chemicals, River Chemicals, VOCs and chemicals on the Target Compound List.

- iv. **Long-Term Phase:** For each and every quarter of each and every year thereafter, the Settling Defendants shall collect a surface water sample at each station in the Rockaway River. Each sample collected at each station during three (3) quarters of each year shall be analyzed for all Well Chemicals, River Chemicals and VOCs. Each sample collected at each station during the remaining quarter of each year shall be analyzed for all Well Chemicals, River Chemicals, VOCs and Target Compound List chemicals. The calendar quarter of this fourth sampling event shall be rotated annually such that Well Chemical, River Chemical, VOC, and Target Compound List chemical analyses will have been performed in each quarter after a four (4) year period. The Settling Defendants shall comply with this monitoring program for each and every year unless and until modified or terminated by EPA.

The Settling Defendants may petition EPA for a modification or elimination of the surface water monitoring requirements in the Rockaway River only after a minimum of four (4) consecutive quarters (1 year) of sampling and analyses have occurred after the end of the Five-Year PT Period (i.e., after the Third Phase (Second Baseline) sampling is completed). EPA will re-evaluate the requirements for full TCL monitoring after ten (10) years have elapsed. At that time, EPA will reduce the frequency or scope of the TCL monitoring program associated with any individual Fill Area(s) if the previous five (5) TCL sampling events indicate that TCL compounds are not migrating, above trigger levels as described in Paragraph 13, from such Fill Area(s). EPA may increase the frequency of TCL monitoring, at its discretion, if such monitoring indicates that TCL compounds are migrating from any Fill Area(s). All modifications of any surface water monitoring requirements contained in this SOW must be in writing signed by the Deputy Director, Emergency & Remedial Response Division, EPA - Region II.

**b. Whippany River**

- i. **Baseline Phase:** Each sampling station will be sampled one time (1X) per month over a period of two (2) consecutive months immediately prior to the Five-Year PT period start. Samples collected from every sampling station will be analyzed for all Target Compound List

chemicals and all River chemicals each month so that after two (2) months of sampling is completed, each sampling station will have been sampled on two (2) separate dates for all Target Compound List chemicals and all River chemicals. Following the initial two (2) sampling events, all stations not solely associated with the South Fill Area will be sampled by the Settling Defendants on three (3) more occasions, equally spaced over the subsequent ten (10) month period. Samples shall be analyzed for Target Compound List chemicals and River chemicals.

- ii. **Five-Year PT Period Phase:** For each and every quarter during every year of the Five-Year PT Period, the Settling Defendants shall collect a surface water sample at each station not solely associated with the South Fill Area. Every sample collected during the first quarter and the third quarter surveys every year during the Five-Year PT Period shall be analyzed for Volatile Organic Compounds (VOCs). Every sample collected during the second quarter and the fourth quarter surveys every year during the Five-Year PT Period shall be analyzed for all chemicals on the Target Compound List and all River chemicals. The calendar quarters (grouped as second and fourth, first and third) shall be rotated annually such that VOCs, river chemicals and Target Compound List chemical analyses will have been performed in each quarter after a two (2) year period. Stations solely associated with the South Fill Area shall be sampled for all Well Chemicals, River Chemicals and VOCs if the results of the water level measurements during the Five-Year PT Period fail to conclusively demonstrate hydraulic control of the South Fill Area, based on EPA's determination.
- iii. **Third Phase (Second Baseline):** For four (4) consecutive quarters (one year) immediately after the Five-Year PT Period ends at the South Fill, the Settling Defendants shall collect surface water samples each quarter at each sample station in the Whippany River. Each sample collected at each station shall be analyzed for all Well Chemicals, River Chemicals, VOCs and chemicals on the Target Compound List.

- iv. **Long-Term Phase:** For each and every quarter of each and every year thereafter, the Settling Defendants shall collect a surface water sample at each station in the Whippany River. Each sample collected at each station during three quarters of each year shall be analyzed for all Well Chemicals, River Chemicals and VOCs. Each sample collected at each station during the remaining quarter of each year shall be analyzed for all Well Chemicals, River Chemicals, VOCs and Target Compound List chemicals. The calendar quarter of this fourth sampling event shall be rotated annually such that Well Chemical, River Chemical, VOC, and Target Compound List chemical analyses will have been performed in each quarter after a four (4) year period. The Settling Defendants shall comply with this monitoring program for each and every year unless and until modified or terminated by EPA.

The Settling Defendants may petition EPA for a modification or elimination of the surface water monitoring requirements in the Whippany River only after a minimum of four (4) consecutive quarters (one year) of sampling and analyses have occurred (i.e., after the Baseline Phase sampling is completed). EPA will re-evaluate the requirements for full TCL monitoring after ten (10) years have elapsed. At that time, EPA will reduce the frequency or scope of the TCL monitoring program associated with any individual Fill Area(s) if the previous five (5) TCL sampling events indicate that TCL compounds are not migrating, above trigger levels as described in Paragraph 13, from such Fill Area(s). EPA may increase the frequency of TCL monitoring, at its discretion, if such monitoring indicates that TCL compounds are migrating from any Fill Area(s). All modifications of any surface water monitoring requirements contained in this SOW must be in writing signed by the Deputy Director, Emergency & Remedial Response Division, EPA - Region II.

**13. Activation of the Groundwater Extraction System at Fill Areas**

The primary objectives of this SOW are to ensure that contaminants do not migrate out of any Fill Area which will: i) cause the level of any Well Chemical in groundwater, averaged over the GWM wells in any GWE Zone, to exceed its respective Well Trigger Level; ii) cause the level of any Well Chemical in any GWM well to

exceed its respective Well Trigger Level by greater than or equal to two times (2X) the respective Trigger Level, measured in any GWM well; iii) cause the level of any River Chemical to exceed its respective River Trigger Level at any instream station in either the Rockaway or Whippany River; or iv) cause or contribute to causing water quality conditions in either the Rockaway or Whippany River which violate any applicable or relevant and appropriate water quality criteria for the Rockaway or Whippany River.

The trigger levels set forth in Exhibits B and C of this SOW are based on the following criteria:

- a) the New Jersey Surface Water Quality Standards for Class FW-2 waters (at N.J.A.C. 7:9-4.1 et seq.);
- b) Federal water quality criteria for protection of human health based upon consumption of water and aquatic organisms, including the criteria set forth for priority toxic pollutants stated in Column D1 at 56 Fed. Reg. 58442 in the Amendments to the Water Quality Standards Regulation (40 C.F.R. Part 131); and
- c) Federal water quality criteria for protection of freshwater aquatic life as set forth in the Amendments to the Water Quality Standards Regulation (40 C.F.R. Part 131) at 56 Fed. Reg. 58420 to 58478.

The three (3) specific trigger events described below, i.e., the Type A Trigger, the Type B Trigger and the Type C Trigger, are designed to identify when contaminants are migrating out of one or more Fill Areas at levels which would necessitate activation of the groundwater extraction system at one or more Fill Areas (or portions thereof as approved in writing by EPA).

A "Type A Trigger" will occur, for the purposes of this SOW, where any analysis of any sample taken from any GWM well at the Site indicates that the concentration of any Well Chemical is greater than or equal to two times (2X) the Well Trigger Level set for that Well Chemical. Settling Defendants shall initiate groundwater extraction at all GWE wells associated with the GWE Zone(s) responsible for the exceedance within an EPA-approved timeframe. Settling Defendants may obtain, analyze, and report the results of a supplemental sample, within the aforementioned EPA-approved timeframe, to EPA for consideration in

determining the need for initiation of such groundwater extraction.

A "Type B Trigger" will occur, for the purposes of this SOW, whenever a) the concentration of a River Chemical at any station located within one-quarter (1/4) mile downstream from any Fill Area or portion thereof ("the downstream location") in either the Whippany River or the Rockaway River exceeds the River Trigger Level for that Chemical and either of the following exists: b.1) the concentration of the River Chemical at that upstream location is less than the River Trigger Level; or b.2) the concentration of a River Chemical at both the upstream and downstream locations are above the River Trigger Level but the downstream concentration is statistically greater than the upstream concentration. The statistical analysis to be used to determine if "the downstream concentration is statistically greater than the upstream concentration" stated in b.2), above, shall be a methodology selected by EPA (or a methodology proposed by the Settling Defendants and consistent with 40 CFR 264.90 through 264.99, approved by EPA).

A "Type C Trigger" will occur, for the purposes of this SOW, whenever the concentration of any Well Chemical in groundwater, averaged over the GWM wells in any GWE Zone, is equal to or greater than its respective Well Trigger Level.

If, at any time after installation of the GWE wells, a Type A Trigger occurs at any Fill Area, the Settling Defendants shall, within an EPA-approved timeframe, initiate groundwater extraction at all GWE wells within those Fill Area(s) or portions of Fill Areas, as approved by EPA, where the Type A Trigger occurred.

If, after the GWE wells are installed, a Type B Trigger occurs or the Settling Defendants have reason to believe that a Type B Trigger has occurred, the Settling Defendants shall, within an EPA-approved timeframe after the earlier of the time the Type B Trigger occurs or when Settling Defendants have reason to believe that a Type B Trigger has occurred, initiate groundwater extraction at all GWE wells within those Fill Area(s) (or portions of Fill Area(s), as approved by EPA) which are suspected to be a source of contaminants causing the Type B Trigger to occur.

If, at any time after installation of the GWE wells, a Type C Trigger occurs at any Fill Area, the Settling Defendants shall, within an EPA-approved timeframe,



initiate groundwater extraction at all GWE wells associated with those GWE Zones where the Type C Trigger occurred.

The Parsippany-Troy Hills Sewage Treatment Plant is, and will continue to be, operating subject to the terms and conditions of a permit(s) issued to it by NJDEPE. Those permit requirements governing water quality relate primarily to the nature and quality of the effluent being discharged by the PTH STP, not by the nature of the water it accepts for treatment. Therefore, the acceptance of effluent from the Site (or any other source) does not ~~per se~~ affect the terms and conditions which the PTH STP will be required to meet. However, if the acceptance and treatment of that water causes permit exceedences for some compounds, specific pre-treatment standards may be imposed for those compounds by NJDEPE.

Notwithstanding any of the above provisions governing activation of the GWE wells, plaintiff NJDEPE, after notifying and consulting with EPA, may require the settling defendants to activate one or more GWE wells should the levels of any contaminant(s) exceed New Jersey's water quality criteria; provided, however, that NJDEPE shall pay from New Jersey State funds all costs incurred by the Settling Defendants for such additional activation(s) not otherwise required under the triggering mechanism described herein, and shall not seek reimbursement for additional costs from the Settling Defendants or from the United States.

**14. De-activation of the Groundwater Extraction System at Fill Areas**

If the Settling Defendants are required to initiate groundwater extraction at any Fill Area due to the occurrence of a Type A Trigger or a Type B Trigger or a Type C Trigger or pursuant to any other requirement of this SOW (other than extraction at the North and South Fills during the Five-Year PT Period), the Settling Defendants shall continue to extract and treat groundwater unless and until the concentrations of all Trigger Chemicals at the affected Fill Area(s) or portion(s) thereof are shown to be lower than the Trigger Levels for all such Chemicals during two (2) consecutive quarterly sampling events which are performed pursuant to the requirements of this SOW. This prerequisite for termination of groundwater extraction and treatment will apply regardless of whether the extraction was initially triggered by elevated levels of Well Chemicals detected in samples

taken from GWM wells (a Type A Trigger or a Type C Trigger) or by elevated levels of River Chemicals detected at stations located in the Whippany or Rockaway River (a Type B Trigger).

#### **15. Performance Standards**

The Performance Standards relating to remediation of the five (5) Fill Areas at the Site include the following:

- a. The average concentration of each Well Chemical in groundwater at all GWM wells installed within a GWE zone shall not exceed its respective Well Trigger Level. The maximum concentration of any Well Chemical in groundwater at any one (1) GWM well installed within a GWE zone shall be less than two times (2X) its respective Well Trigger Level. Contaminants from the Site shall not cause the level of any River Chemical to exceed its respective River Trigger Level at any instream stations in either the Rockaway or Whippany River.
- b. The remedial measures implemented at the Site shall be constructed, operated and maintained to ensure that conditions causing a Type A Trigger, a Type B Trigger, or a Type C Trigger are controlled at any Fill Area.
- c. All components of the Work performed pursuant to this SOW and the Remedial Action implemented pursuant to the Decree shall comply with the substantive requirements of all ARARs (applicable or relevant and appropriate requirements) and TBCs (to-be-considered) stated in the ROD, the ESD, the Decree and the SOW.
- d. If either a Type A Trigger, a Type B Trigger and/or a Type C Trigger occurs, all GWE wells at all Fill Area(s) contributing to the occurrence of any or all of these Trigger Events (or portions of Fill Areas, as agreed to by EPA) shall be activated and groundwater from such Fill Area(s) (or at portions of Fill Area(s) as approved in writing by EPA) shall thereafter continue to be extracted and transported to and treated at the PTH STP unless and until de-activation of the GWE wells is allowed pursuant to the terms of Section E.14., above.

#### **F. PROJECT SUPERVISION/MANAGEMENT**

##### **1. Supervisory Professional Engineer**

The Remedial Design Work, Remedial Action Work, O&M Work, and any other technical work performed by

Settling Defendants pursuant to this Consent Decree shall meet any and all requirements of applicable Federal, State and local laws and be performed under the direction and supervision of a qualified licensed professional engineer. Prior to the initiation of each work element, Settling Defendants shall notify EPA, in writing, of the name, title, proposed responsibilities and qualifications of the supervisory engineer, and the names of all contractors and subcontractors proposed to be used in that portion of the development and implementation of the Work to be performed by those parties. All plans and specifications and all completed Work shall be prepared under the supervision of, and signed and certified by, a licensed New Jersey professional engineer. Selection of any such engineer, contractor or subcontractor shall be subject to approval by EPA. (See Sections F.1. and H.1.a.ii. below.)

**2. Project Coordinator**

The Project Coordinator shall be responsible for the day to day management of all Work to be performed pursuant to this Consent Decree. The Project Coordinator shall have adequate technical and managerial experience to manage all Work described in this Statement of Work and under this Consent Decree including having knowledge relating to all activities at the Site. The Project Coordinator shall not be an attorney. The Project Coordinator shall be knowledgeable at all times about all matters relating to activities regarding the Remedial Design and Remedial Action. The Project Coordinator shall be the primary contact for EPA on all matters relating to Work at the Site and should be available for EPA to contact during all working days.

**G. REMEDIAL DESIGN**

**1. Site Management Plan for Remedial Design**

- a. Within ninety (90) calendar days after lodging of the Consent Decree, Settling Defendants shall submit to EPA and the State, a Site Management Plan (SMP) for Remedial Design activities (i.e., for preparation of the Remedial Design Work Plan required by Section G.2., below, and the Remedial Design Work).
- b. The SMP for Remedial Design shall be an overall plan which shall identify the Project Coordinator, Supervisory Engineer, contractors and

subcontractors, and their respective responsibilities for performance of the Remedial Design activities. The SMP shall include a list of all individuals expected to participate in the Remedial Design Work. The responsibilities of each key manager, engineer, architect, scientist or technician shall be provided, as well as a curriculum vitae. A provision shall be included in the SMP providing for the submittal of supplemental information to EPA for approval prior to the involvement of additional key personnel in the Remedial Design.

- c. EPA will either approve the SMP for Remedial Design, or require modification of it, in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of the Consent Decree.

## **2. Remedial Design Work Plan**

Within sixty (60) calendar days after Settling Defendants receive written notification from EPA of the approval of the SMP for Remedial Design activities, Settling Defendants shall submit a detailed Remedial Design Work Plan to EPA and the State. The Remedial Design Work Plan shall conform to the "Superfund Remedial Design and Remedial Action Guidance" dated June 1986, and to any additional guidance documents provided by EPA. The Remedial Design Work Plan shall include, but not be limited to, the following items:

### **a. Sampling, Analysis and Monitoring Plan**

- i. The Sampling, Analysis and Monitoring Plan (SAMP) will describe in detail the sampling, analysis and monitoring that must be performed by the Settling Defendants during the Remedial Design Work, to design the remedy as specified in the ROD as amended by the ESD.
- ii. All sampling and monitoring shall be performed in accordance with the "Region II CERCLA Quality Assurance Manual," EPA Region II, dated October 1989, or an alternate EPA-approved test method, and all testing methods and procedures will be fully documented and referenced to established methods or standards.
- iii. The SAMP shall include, without limitation, the following items:

- (1) A map depicting sampling locations;
  - (2) A detailed description of the sampling, analysis, testing and monitoring to be performed, including sampling methods, analytical and testing methods, sampling locations and frequency of sampling;
  - (3) Additional sampling locations, testing, monitoring and analyses subsequently identified shall be submitted as an addendum to the SAMP;
  - (4) A discussion of how the sampling, analysis, testing and monitoring will produce data useful for the Remedial Design or for other purposes; and
  - (5) A schedule for performance of specific tasks.
- iv. The results of all sampling to be performed during the Remedial Design phase of the Work shall be submitted to EPA in a report prior to submittal of the Preliminary Remedial Design Report.

**b. Quality Assurance Project Plan**

- i. The Quality Assurance Project Plan (QAPP) for the Remedial Design Work shall be developed by Settling Defendants, and must be submitted to EPA and approved by EPA prior to the commencement of any sampling, testing, monitoring or treatability study activities during the Remedial Design Work.
- ii. The QAPP shall be completed in accordance with the "Region II CERCLA Quality Assurance Manual," EPA-Region II, dated October 1989, and all other guidance as specified in Section IX, Quality Assurance, Sampling, and Data Analysis, of the Consent Decree.
- iii. In order to provide quality assurance and maintain quality control with respect to all samples collected during the Remedial Design Work, Settling Defendants shall ensure the following:
  - (1) The QAPP shall include, at a minimum, the following items:

- (a) Title Page
  - (b) Table of Contents
  - (c) Project Description
  - (d) Project Organization and Responsibility
  - (e) Quality Assurance Objectives
  - (f) Sampling Procedures
  - (g) Sample Custody and Document Control
  - (h) Calibration Procedures and Frequency
  - (i) Analytical Procedures
  - (j) Data Reduction, Validation and Reporting
  - (k) Internal Quality Control Checks and Frequency
  - (l) Performance and Systems Audits
  - (m) Preventive Maintenance
  - (n) Specific Routine Procedures Used to Assess Data Precision, Accuracy and Completeness
  - (o) Corrective Action
  - (p) Quality Assurance Reports to Management;
- (2) Settling Defendants shall use quality assurance procedures and chain-of-custody procedures in accordance with standard EPA protocol;
- (3) Settling Defendants shall ensure, prior to engagement of a laboratory for the analyses of samples, that the laboratory is either a participant in good standing in EPA's Contract Laboratory Program (CLP), or that the laboratory can demonstrate its ability to perform all tasks required under the CLP;
- (4) In the event that the laboratory utilized by Settling Defendants is not a CLP participant for a relevant set of parameters, Settling Defendants shall ensure that the laboratory will analyze performance evaluation samples submitted by EPA for those parameters for quality assurance purposes;
- (5) Settling Defendants shall ensure that the laboratory utilized for analyses of samples performs all analyses according to accepted EPA methods as documented in the "Contract Lab Program Statement of

Work for Organic Analysis," Series 390, latest revision, and the "Contract Lab Program Statement of Work for Inorganic Analysis," Series 390, latest revision, or other EPA approved methods;

- (6) Upon receipt from the laboratory, Settling Defendants shall promptly validate all analytical data and shall promptly submit to EPA the validation package (checklist, report and Form #1 containing the final data), prepared in accordance with the provisions of Section G.2.b.iii(7), below;
- (7) Settling Defendants shall ensure that all analytical data are validated according to the procedures stated in the "EPA Region II Contract Lab Program Organics Data Review and Preliminary Review (SOP #HW-6, Revision 8)," dated January 1992 or the latest revision, and the "Evaluation of Metals Data for the Contract Laboratory Program (SOP #HW-2, Revision 11)," dated January 1992 or the latest revision, or equivalent procedures approved by EPA pursuant to Section IX of the Consent Decree;
- (8) Upon request by EPA, Settling Defendants shall promptly provide EPA with any prevalidated results of all sampling and/or tests or other data generated by Settling Defendants with respect to the implementation of the Consent Decree. These prevalidated results should be stamped to indicate that they are draft or preliminary;
- (9) All analytical data shall be submitted to EPA in a CLP deliverables format, or in a similar, reduced format approved by EPA, pursuant to Section IX of the Consent Decree; and
- (10) Settling Defendants shall ensure that all contracts with the laboratory utilized by Settling Defendants for analyses of samples provide for access of United States Government personnel and authorized representatives of the United States for the purpose of

ensuring the accuracy of laboratory results related to the Site.

**c. Health and Safety/Contingency Plan**

- i. A Health and Safety/Contingency Plan (HASCP) for the Remedial Design Work shall be developed by Settling Defendants to address the protection of public health and safety and response to contingencies that could impact public health, safety and the environment during the Remedial Design Work. The HASCP shall satisfy the requirements of the "Occupational Safety and Health Guidance for Hazardous Waste Site Activities," (October 1985, DHH 5 NIOSH Publication No. 85-115), and the Occupational Safety and Health Administration, U.S. Department of Labor (OSHA) requirements cited below.
- ii. Site activities involving inspections, investigations and remedial activities shall be performed in such a manner as to ensure the safety and health of personnel so engaged. All Site activities shall be conducted in accordance with all pertinent general industry (29 C.F.R. §1910) and construction (29 C.F.R. §1926) OSHA standards, as well as any other applicable State and municipal codes or ordinances. All Site activities shall comply with those requirements set forth in OSHA's interim final rule entitled "Hazardous Waste Operations and Emergency Response," 29 C.F.R. §1910.120, Subpart H, as set forth in the Federal Register of December 19, 1986, until such time as the final rule becomes effective, at which time such activities shall comply therewith.
- iii. The HASCP shall include, at a minimum, the following items:
  - (1) Plans showing the location and layout of any temporary facilities to be constructed on or near the Site;
  - (2) Description of the known hazards and evaluation of the risks associated with the Site and the potential health impacts related to Site activities;



- (3) List of key personnel and alternates responsible for Site safety, response operations and protection of the public;
- (4) Description of levels of protection (based on specified standards) to be utilized by all personnel;
- (5) Delineation of work, decontamination and safe zones, and definitions of the movement of zones;
- (6) Description of decontamination procedures for personnel and equipment, and handling and removal of disposable clothing or equipment;
- (7) Incidental emergency procedures which address emergency care for personnel injuries and exposure problems, and containment measures. These procedures shall include evacuation routes, internal and external communications procedures and procedures for response to fires and explosions. Local agencies with the capability to respond to emergencies shall be identified and their capabilities shall be described;
- (8) Description of the personnel medical surveillance program in effect;
- (9) Description of monitoring for personnel safety;
- (10) Description of routine and special personnel training programs; and
- (11) Description of an air monitoring program to determine concentrations of airborne contaminants to which workers on the Site and to which persons at or beyond the Site boundary may be exposed.

**d. Plan for Obtaining Access Approvals and Other Approvals**

The Remedial Design Work Plan shall address any approvals which Settling Defendants must obtain to comply with the Consent Decree and this SOW, with the exception of those approvals required from EPA. The Plan shall detail how such approvals

will be sought, and will include a schedule for obtaining all necessary approvals. Such approvals shall include the permission of owners of the Site and the owners of property near the Site regarding access for representatives of the Settling Defendants and EPA to conduct sampling, monitoring or other activities, and approvals of off-Site waste management facilities or recycling facilities to accept materials from the Site, as applicable. The Plan shall be amended if subsequent approvals are required.

**e. Description of Additional Remedial Design Tasks**

The Remedial Design Work Plan shall include a detailed description of all other Remedial Design tasks to be performed, along with a schedule for performance of those tasks. Such tasks shall include, at a minimum, the preparation of the Remedial Design Reports required by Section G.5., below. The Remedial Design Work Plan shall include an outline of the requirements of each of the Remedial Design Reports.

**f. Remedial Design Schedule and Draft Schedule for Remedial Action, O&M and Groundwater Monitoring**

- i. The Remedial Design schedule and draft schedule for the Remedial Action, O&M and Groundwater Monitoring activities shall be in the form of a task/subtask activity bar chart or critical path method sequence of events.
- ii. The draft schedule for the Remedial Action, O&M and Groundwater Monitoring activities may be revised during the remedial process.
- iii. The Remedial Design schedule and draft schedule for Remedial Action, O&M and Groundwater Monitoring activities shall be in agreement with Section E. above.

**3. Approval of Remedial Design Work Plan**

EPA will either approve the Remedial Design Work Plan, or will require modification of such Plan, in accordance with the procedures set forth in Section VI, Performance of Work By Settling Defendants, of the Consent Decree.

**4. Remedial Design**

Settling Defendants shall perform the Remedial Design in conformance with the Remedial Design Work Plan approved by EPA.

**5. Remedial Design Reports**

The Remedial Design Work shall include the preparation of the following Remedial Design Reports: a Preliminary Design Report (35% completion); Intermediate Design Report (65%); a Pre-Final Report (95% completion); and a Final Design Report (100% completion). The reports shall be submitted to EPA and the State in accordance with the schedule set forth in the approved Remedial Design Work Plan. Each Remedial Design Report shall include a discussion of the design criteria and objectives, with emphasis on the capacity and ability to meet design objectives successfully. Each report shall also include the plans and specifications that have been completed, along with a design analysis. The design analysis shall provide the rationale for the plans and specifications, including supporting calculations and documentation of how these plans and specifications will meet the requirements of the ROD, ESD, and SOW. The design reports shall also include the following items (to the extent that work has been performed regarding the items):

- a. A SAMP for sampling, analysis, testing and monitoring to be performed during the Remedial Action phase of the Work. (See Sections E. and G.2.a., above, for SAMP requirements);
  - i. The SAMP shall include an environmental monitoring program to be implemented during the Remedial Action. Sampling shall be specifically timed to document any and all environmental impacts of the Remedial Action; and
  - ii. The SAMP shall include testing methods appropriate to the Remedial Action including, at a minimum, testing of the Remedial Action materials prior to use, and testing of constructed remedial components to ensure that they meet design specifications.
- b. A Quality Assurance Project Plan for sampling, analysis, testing and monitoring to be performed during the Remedial Action phase of the Work. (See Section G.2.b., above, for QAPP requirements);

- i. The QAPP shall also address quality assurance requirements and standards relating to construction operations. Quality assurance items to be addressed include, but are not limited to, the following:
  - (1) Inspection and certification of the Work;
  - (2) Measurement and daily logging;
  - (3) Field performance and testing;
  - (4) As-built drawings and logs; and
  - (5) Testing of the Remedial Design Work to establish whether the design specifications have been attained.
- c. A Health and Safety/Contingency Plan for the Remedial Action phase of the Work. (See Section G.2.c., above, for HASCP requirements.) The HASCP shall address health and safety measures to be implemented and observed by construction personnel, as well as recommended health and safety measures for the adjacent community and general public, together with a description of the program for informing the community of these recommendations;
- d. A report describing those efforts made to secure access and obtain other approvals and the results of those efforts. (See Section G.2.d., above.) Legal descriptions of property or easements to be acquired shall be provided;
- e. Completed Federal and State environmental permit applications (including any required supplements) that would be required if the selected remedial alternative were not conducted under the authority of the Comprehensive Environmental Response, Compensation and Liability Act, as amended. Permit applications for work to be done entirely on the Site do not need to be signed;
- f. A plan for photographic documentation of the Remedial Action Work. (See Section H.3, below.);
- g. A Preliminary O&M Plan. (See Section H.4, below.) Activities that will not continue after the completion of the Remedial Action should not be addressed. However, O&M activities that will continue after the completion of Remedial Action (e.g., operation of groundwater extraction and treatment system, sampling and analysis of surface

water and groundwater, maintenance of the landfill caps/covers, etc.) shall be addressed, even for the periods when these activities may occur concurrently with Remedial Action activities; and

- h. A schedule for Remedial Action activities, and a draft schedule for O&M activities (see Section G.2.f., above).

**6. Preliminary Design Report: Additional Requirements**

The Preliminary Design Report shall also include:

- a. Results of sampling performed under Section G.2.a.i.;
- b. Process flow diagrams and preliminary construction drawings showing general arrangement of all Work proposed;
- c. Table of Contents for the specifications, including a listing of specification items from the Construction Specifications Institute master format expected to be included in the construction specifications. This master format is presented in the Construction Specifications Institute's "Manual of Practice," 1985 edition, available from the Construction Specifications Institute, 601 Madison Street, Alexandria, Virginia 22314;
- d. Engineering plans representing an accurate identification of existing Site conditions, and an illustration of the Work proposed. Items to be provided on such drawings include, at a minimum, the following:
  - i. Title sheet including at least the title of the project, a key map, the name of the designer, date prepared, sheet index, and EPA project identification;
  - ii. All property data including owners of record for all properties within 200 feet of the Site;
  - iii. The distance and bearing of all property lines that identify and define the project Site;
  - iv. All easements, rights-of-way and reservations;
  - v. All buildings, structures, wells, facilities, controls, equipment and features, existing and

proposed, including interim remedial measures;

- vi. A topographic survey, including existing and proposed contours and spot elevations for all areas that will be affected by the Remedial Action;
- vii. All utilities, existing and proposed;
- viii. Location and identification of all significant natural features including, inter alia, wooded areas, water courses, wetlands, flood hazard areas and depressions;
- ix. Flood hazard data and delineation, if applicable;
- x. North arrow, scale, sheet numbers and the person responsible for preparing each sheet;
- xi. Decontamination areas, staging areas, borrow areas and stockpiling areas;
- xii. Miscellaneous detail sheets; and
- xiii. Definitions of all symbols and abbreviations.

**7. Pre-final Design Report: Additional Requirements**

The Pre-Final Design Report shall also include:

- a. Survey work that is appropriately marked, recorded and interpreted for mapping, property easements and Remedial Design completion;
- b. Construction drawings of all proposed Work facilities, equipment, improvements, details and all other construction and installation items to be developed in accordance with the current standards and guidelines of the New Jersey State Board of Professional Engineers and Land Surveyors. Drawings shall be of standard size, approximately 24-inch x 36-inch. A list of drawing sheet titles will be provided; and
- c. Engineering plans indicating, at a minimum, the following:
  - i. Site security measures;
  - ii. Roadways; and

- iii. Electrical, mechanical and structural drawings.

#### **8. Approval of Remedial Design Reports**

- a. EPA will review and comment on the Preliminary, Intermediate and Pre-Final Remedial Design Reports. Settling Defendants shall make those changes required by EPA's comments in the succeeding design report (e.g., changes required by comments on the Preliminary Remedial Design Report shall be made in the Pre-Final Remedial Design Report) in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of the Consent Decree.
- b. EPA will either approve the Final Remedial Design Report or will require modification of it, in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of this Consent Decree.

#### **H. REMEDIAL ACTION**

##### **1. Requirements**

- a. Within ninety (90) calendar days of EPA's approval of the Remedial Action Work Plan, pursuant to paragraph 12(a) of the Consent Decree, Settling Defendants shall award a contract for the Remedial Action activities to an appropriate contractor(s). Within one hundred and twenty (120) calendar days of approval of the Final Remedial Design Report, Settling Defendants shall submit the following items to EPA:
  - i. Any requests for modification of the approved Final Remedial Design Report based on construction methods identified by the Remedial Action Contractor(s), or modification of the Remedial Action schedule developed under Section G.5.h., above, or other new information;
  - ii. An SMP for the Remedial Action activities. (See Section G.1.b., above, for SMP requirements.) The SMP for the Remedial Action shall also include, at a minimum, the following items:
    - (1) Identification of all off-Site facilities proposed to be used to manage

hazardous substances, pollutants, contaminants, or other materials from the Site resulting from the Remedial Action Work. For each facility, the proposed materials and methods of management shall be described;

(2) Discussion of the methods by which Remedial Action operations shall proceed. Discussion shall include the following:

- (a) Timing of and manner in which activities shall be sequenced;
- (b) Preparation of the Site including security, utilities, decontamination facilities, construction trailers, equipment storage and construction of roadways;
- (c) Coordination of Remedial Action activities;
- (d) Site maintenance during the Remedial Action phase of the Work;
- (e) Coordination with local authorities regarding contingency planning and potential traffic obstruction; and
- (f) Entry and access to the Site during the construction period(s) and periods of inactivity, including provisions for decontamination, erosion control and dust control.

(3) Discussion of Remedial Action quality control. This discussion shall include the following:

- (a) Methods of performing the quality control inspections, including when inspections should be made and what to look for;
- (b) Control testing procedures for each specific test. This includes information which authenticates that personnel and laboratories performing the tests are qualified



and the equipment and procedures to be used comply with applicable standards;

- (c) Procedures for scheduling and managing submittals, including those of subcontractors, off-Site fabricators, suppliers, and purchasing agents; and
  - (d) Reporting procedures including frequency of reports and report formats.
- b. EPA will either approve the SMP for Remedial Action or require modification of it in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of the Consent Decree. EPA will either approve, disapprove or require modification of any requests for modification of the Final Remedial Design Report and Remedial Action schedule in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of the Consent Decree.
- c. At least thirty (30) calendar days prior to initiation of any Remedial Action activities, the Settling Defendants shall submit the name and qualifications of the Independent Quality Assurance Team (IQAT) for approval by EPA. The IQAT is used to provide confidence to the Settling Defendants that the selected remedy is constructed to meet project requirements. The IQAT implements the Remedial Action Quality Assurance Plan by selectively testing and inspecting the work of the Construction Contractor. The IQAT shall be "independent" and autonomous from the Construction Contractor, and may come from within the ranks of the Settling Defendants' own staffs, the Remedial Design Professional organization, or through a separate contractual relationship with a private consulting entity. EPA's approval will be based on professional and ethical reputation, previous experience in the type of quality assurance activities to be implemented, and demonstrated capability to perform the required activities. In addition, EPA's approval will be based on the requirement for independence between the IQAT and the Construction Contractor. The submitted

information about the IQAT contractor shall include a written statement of qualification in sufficient detail to allow EPA to make a full evaluation of the IQAT's qualifications and facilities.

**2. Performance of Remedial Action Work**

- a. Upon receipt of EPA's written approval of the SMP for the Remedial Action activities, as well as the written approval or disapproval of any requests for modification of the Final Remedial Design Report and/or Remedial Action schedule, Settling Defendants shall perform the Remedial Action Work in accordance with the SMP and the approved Final Remedial Design Report, which includes the approved Remedial Action schedule.
- b. During performance of the Remedial Action, Settling Defendants may identify and request approval from EPA for field changes to the approved SMP for the Remedial Action, Final Remedial Design Report and Remedial Action schedule as necessary to complete the work. EPA will either approve, disapprove or require modification of any requests for field changes in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of the Consent Decree.

**3. Photographs**

Settling Defendants shall furnish photographs and slides to EPA that record the progress of the Remedial Action including, at a minimum, the important features of the Site prior to the commencement of the Work, the actual construction activities associated with the various tasks, and the appearance of the Site after the Remedial Action has been completed. Such photographs and slides shall be developed expeditiously and shall be submitted as part of the monthly progress report for the month in which the photographs and slides are taken. In addition, aerial photography shall be conducted once a quarter beginning immediately before the start of construction and ending after completion of all construction activities.

**4. Operation and Maintenance Plan**

- a. No later than one hundred and twenty (120) calendar days prior to the scheduled completion date of the Remedial Action Work, Settling

Defendants shall submit to EPA and the State an O&M Plan.

b. The O&M Plan shall include, at a minimum, the following:

- i. An SMP for O&M activities. (See Section G.1.b., above, for SMP requirements.) The SMP for O&M activities shall identify all off-site facilities proposed to be used to manage hazardous substances, pollutants, contaminants, or other materials from the Site resulting from the O&M work. For each facility, the proposed materials and methods of management shall be described;
- ii. A SAMP Plan for O&M activities. These activities shall include, but are not limited to, the following:
  - (1) The collection and analysis of groundwater and surface water samples after construction of the Selected Remedial Alternative as set forth in Section E above;
- iii. A Quality Assurance Project Plan for O&M activities. (See Section G.2.b., above, for QAPP requirements.) Settling Defendants shall require 25% full CLP and 75% SW846 deliverables, based on one quarterly event for full CLP and three quarters SW846, from the laboratory providing the analytical data collected to verify that the remediation goals specified in the ROD, ESD and SOW have been attained. EPA reserves the right to select the appropriate QA/QC (Quality Assurance/Quality Control) deliverables from the SW846 methods. Upon EPA's request, Settling Defendants shall submit to EPA the full CLP/SW846 documentation for this sampling;
- iv. A Health and Safety/Contingency Plan for O&M activities. (See Section G.2.c., above, for HASCP requirements.);
- v. A description of the routine O&M for the groundwater extraction and treatment system including a description of tasks for

operation, tasks for maintenance, and prescribed treatment or operating conditions;

- vi. A description of potential operating problems and remedies to such problems;
  - vii. A description of alternative O&M in the event of system failure; a schedule for regular inspection of all landfill areas to check for erosion and other defects in vegetation, soil cover, and cap materials. Increased inspection frequency must be considered for areas with high potential for erosion and/or slope failure;
  - viii. A schedule for equipment replacement and cap/cover maintenance;
  - ix. A detailed description of the appropriate sampling, storage, treatment or disposal of any hazardous wastes generated during O&M activities; and
  - x. An O&M schedule that identifies the frequency of O&M activities and when those activities will commence. Also, a schedule that identifies timeframes during which corrective actions will take place when a deficiency is identified.
- c. EPA will either approve the O&M Plan, or require modification of it, in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of the Consent Decree.
  - d. Modifications to the approved O&M Plan may be submitted to EPA for consideration upon completion of the Remedial Action or thereafter if Settling Defendants demonstrate that such modifications are appropriate.
  - e. EPA will either approve, disapprove, or require modifications of any requests for modification of the O&M Plan, in accordance with the procedures set forth in Section XII, Submissions Requiring Agency Approval, of the Consent Decree.
5. Notice of Completion and Final Report for the Remedial Action
- a. Within one hundred and twenty (120) calendar days of the completion of the Remedial Action, Settling

Defendants shall submit to EPA a Notice of Completion and Final Report for the Remedial Action. The Notice of Completion shall be signed by a qualified licensed professional engineer meeting any and all requirements of applicable Federal, State and local laws, and shall certify that the Remedial Action Work has been completed in full satisfaction of the requirements of the Consent Decree, this SOW, and all plans, specifications, schedules, reports and other items developed hereunder. The Final Report shall summarize the Work performed. If the Selected Remedial Alternative, as implemented, differs in any way from the approved plans and specifications of the Final Remedial Design Report, such modifications shall be reported, and "as built" plans and specifications shall be provided showing all such modifications. The reasons for all such modifications shall be described in detail.

- b. EPA will determine whether the Remedial Action activities, or any portion(s) thereof, have been completed in accordance with the standards, specifications and reports required by this Consent Decree. If not, EPA shall notify Settling Defendants in writing of those tasks which must be performed to complete the Remedial Action. Settling Defendants shall then implement the specified activities and tasks in accordance with the specifications and schedules established by EPA, and shall then submit a further report on the specified activities and tasks and certification signed by a licensed professional engineer, within twenty (20) calendar days after completion of the specified activities and tasks.

## **I. OPERATION AND MAINTENANCE**

Upon EPA's certification of completion of the Remedial Action Work, Settling Defendants shall perform O&M activities in accordance with the approved O&M Plan, which includes the O&M schedule.

### **1. Notice of Completion and Final Report for O&M**

- a. Within one hundred and twenty (120) calendar days of the Settling Defendants' determination that the remedial goals have been achieved or EPA's approval of the Settling Defendants petition to modify and/or eliminate the GWM program (Section

E.10 of this SOW) or surface water monitoring (Section E.12 of this SOW), Settling Defendants shall submit to EPA a Notice of Completion and Final Report for O&M. (See Section H.5., above, for requirements.)

- b. EPA will determine whether the O&M activities or any portion(s) thereof have been completed in accordance with the standards, specifications and reports required by the Consent Decree. If not, EPA shall notify Settling Defendants in writing of those tasks which must be performed to complete the O&M. Settling Defendants shall then implement the specified activities and tasks in accordance with the specifications and schedules established by EPA and shall then submit a further report on the specified activities and tasks and certification signed by a licensed professional engineer, within thirty (30) calendar days after completion of the specified activities and tasks.

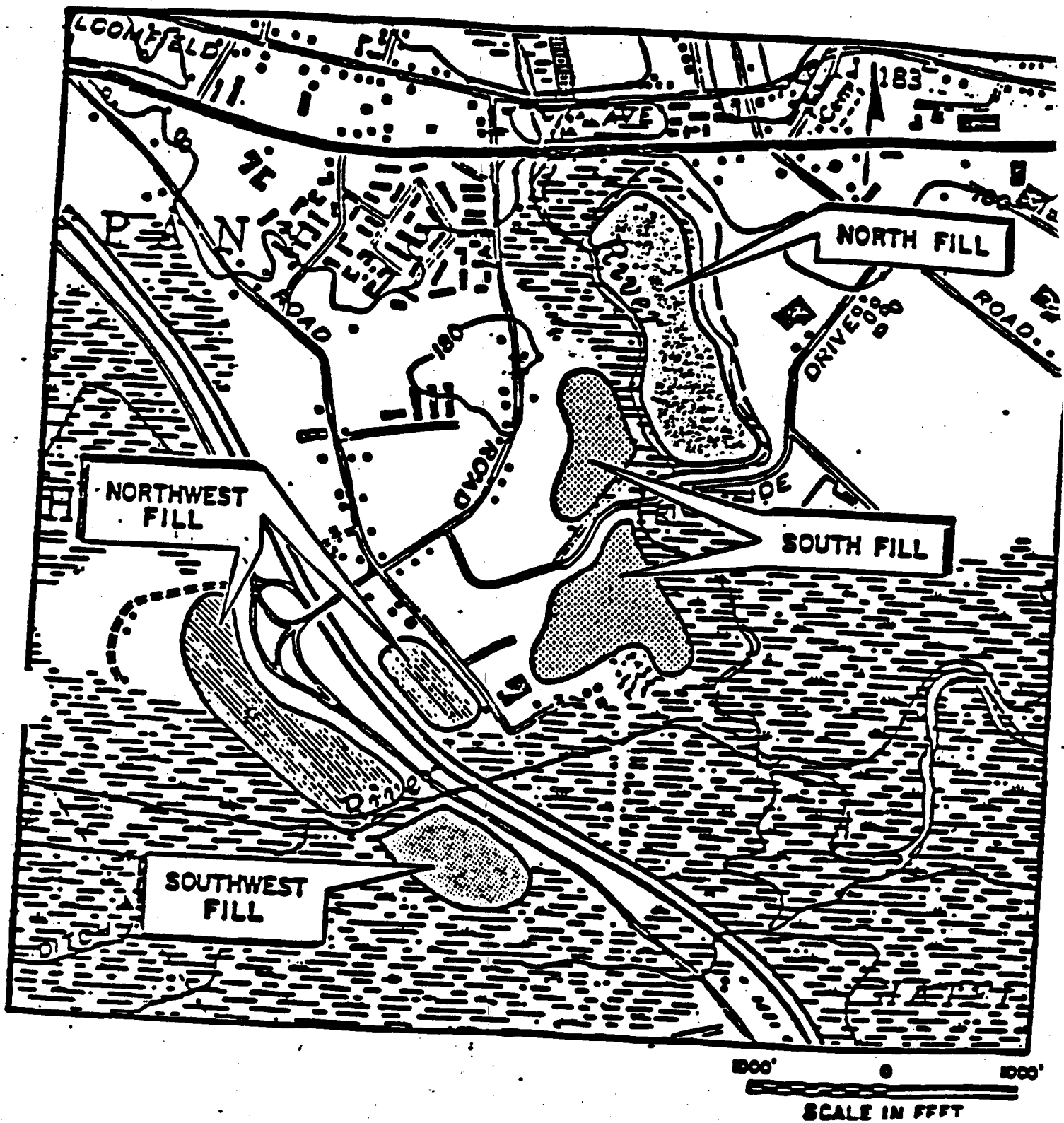
**J. LIST OF STATEMENT OF WORK (SOW) EXHIBITS**

**EXHIBIT**

- |          |   |
|----------|---|
| <b>A</b> | <b>TARGET COMPOUND LIST</b>                     |
| <b>B</b> | <b>WELL CHEMICALS AND WELL TRIGGER LEVELS</b>   |
| <b>C</b> | <b>RIVER CHEMICALS AND RIVER TRIGGER LEVELS</b> |
| <b>D</b> | <b>DESIGN CAP</b>                               |
| <b>E</b> | <b>SITE MAP</b>                                 |
| <b>F</b> | <b>AREAS TO BE CAPPED</b>                       |

**APPENDIX C**  
**MAP OF THE SITE**





THE SHARKEY LANDFILL SUPERFUND SITE

**APPENDIX D**

**NON-OWNER SETTling DEFENDANTS**

**ALLIEDSIGNAL INC.**

**AMERICAN TELEPHONE AND TELEGRAPH COMPANY (AT&T)**

**AUTOMATIC SWITCH COMPANY**

**BECTON DICKINSON AND COMPANY**

**BROWNING-FERRIS INDUSTRIES OF NORTH JERSEY, INC.**

**CHEMICAL WASTE MANAGEMENT, INC. AND ITS  
SUBSIDIARY CARL GULICK, INC.**

**CIBA-GEIGY CORPORATION**

**CURTISS-WRIGHT CORPORATION**

**HOECHST CELANESE CORPORATION**

**HOSOKAWA MICRON INTERNATIONAL INC.**

**INDUSTRIAL CIRCUITS COMPANY**

**JOHN DUSENBURY COMPANY, INC.**

**KDI/TRIANGLE ELECTRONICS, INC.**

**K-H CORPORATION ON BEHALF OF MAGOR CAR**

**KIDDE INDUSTRIES, INC.**

**LESLIE CONTROLS COMPANY, INC.**

**APPENDIX D**

**METEM CORPORATION**

**NESOR ALLOY CORP.**

**NEW JERSEY DEPARTMENT OF TRANSPORTATION**

**NICHOLAS ENTERPRISES, INC.**

**PFIZER INC.**

**RAYONIER INC. (FORMERLY ITT RAYONIER, INC.)**

**ROWE INTERNATIONAL, INC.**

**SAFETY LIGHT CORPORATION, INC.**

**SANDOZ PHARMACEUTICALS CORPORATION AND ITS PREDECESSORS, AND  
THEIR PARENTS AND AFFILIATES UNDER COMMON OWNERSHIP OR  
CONTROL**

**SCOVILL INC.**

**THE SHERWIN-WILLIAMS COMPANY**

**WAGNER ELECTRIC CORPORATION**

**WARNER-LAMBERT COMPANY**

**APPENDIX E**

**DE MINIMIS SETTLING DEFENDANTS**

**AIR PRODUCTS AND CHEMICALS, INC.**

**BEAZER EAST, INC. f/k/a KOPPERS COMPANY, INC.**

**THE BOC GROUP, INC. (Airco)**

**CARBONE LORRAINE NORTH AMERICA**

**CERAMIC MAGNETICS, INC.**

**KETCHAM & McDOUGALL**

**L.E. CARPENTER & COMPANY**

**THE MENNEN COMPANY**

**NSK CORPORATION**

**ROCKLAND CORPORATION**

**OCCIDENTAL CHEMICAL CORPORATION**

**SIKA CORPORATION**

**APPENDIX F**

**OWNER SETTLING DEFENDANTS**

**TOWNSHIP OF PARSIPPANY-TROY HILLS**

**HMAT ASSOCIATES, INC.**

## **APPENDIX G**

### **PART A**

#### **RESPECTIVE CONSENT DECREE OBLIGATIONS INTER SE OF TOWNSHIP OF PARSIPPANY-TROY HILLS AND NON-OWNER SETTLING DEFENDANTS**

##### **I. TOWNSHIP OF PARSIPPANY-TROY HILLS CONSENT DECREE OBLIGATIONS**

Except as otherwise noted, the following activities will commence at the point of Certification by the U.S. Environmental Protection Agency that Remedial Action has been completed, and shall continue until the U.S. Environmental Protection has given written notice that the activity may be discontinued.

1. Collect pretreat (if a pretreatment unit is constructed as part of the Remedial Action) and treat at the Parsippany-Troy Hills Wastewater Treatment Facility ground water extracted from the ground water extraction system;
2. Operate and provide required maintenance on all wells, all piping, valves, pumps, electrical components and other components of the groundwater extraction, pretreatment and treatment systems;
3. Monitor methane gas emissions from areas of the Sharkey Landfill required to be so monitored and take said gas or mine said gas where it deems appropriate at its discretion or if required by the Consent Decree;
4. Perform annual operation and maintenance activities required for the cap and cover on the North and South Fill areas which shall be limited to inspections, vegetation maintenance, and routine drainage control maintenance and routine maintenance involving structures. Additionally, perform O&M to all areas required with the exception of O&M activities being undertaken by another settling party pursuant to an Agreement, Judgment or Order, and with the exception of those duties and obligations undertaken by the Corporate Parties.

(continued...)

## **APPENDIX G**

### **PART A**

5. Perform annual operation and maintenance activities for cover and drainage control maintenance on the Northwest-North Fill, the Northwest-South Fill and the area lying between the North Fill and the South Fill generally referred to as to Police Firing Range area.
6. Maintain all security fencing, access roads and the North Fill Bridge.
7. All O&M required by the Consent Decree, but not any O&M that arises out of repairs necessitated by improper or inadequate design, construction or installation.

## **APPENDIX C**

### **PART A**

#### **II. NON-OWNER SETTLING DEFENDANTS' CONSENT DECREE OBLIGATIONS**

1. Remedial pre-design and remedial design;
2. Removing or re-burying exposed refuse;
3. Removing for off-site disposal significantly contaminated soil;
4. Regrading areas of the Sharkey Landfill requiring regrading;
5. Construction of erosion control structures, regrading for erosion control and construction of drainage controls;
6. Construction of landfill caps;
7. Placement of cover;
8. Rehabilitation of the North Fill Bridge and other necessary access ways;
9. Construction of security fencing;
10. Installation of monitoring wells and extraction wells;
11. Construction of the groundwater extraction system;
12. Connection of the groundwater extraction system to the Parsippany-Troy Hills Wastewater Treatment Plant, and construction and connection to a pretreatment facility if such a facility is required by EPA in accordance with the requirements of the Consent Decree;
13. All reporting, recordkeeping and other administrative obligations associated with the remedial design, construction and compliance monitoring of groundwater and surface water as required by the Sharkey Consent Decree;



(continued...)

**APPENDIX G**

**PART A**

14. Baseline ground and surface water monitoring and ground water and surface water monitoring required by the Sharkey Consent Decree to be undertaken during the remedial action phase of the work;
15. Construction of a gas venting system if required on the North Fill and the South Fill;
16. Long-term (O&M phase) ground water and surface water monitoring;
17. Reporting and recordkeeping associated with long-term ground water and surface water monitoring.

## CONSENT DECREE FOR SHARKEY LANDFILL SUPERFUND SITE

### APPENDIX G PART B OBLIGATIONS OF HMAT ASSOCIATES, INC.

HMAT shall be solely responsible for the performance of all site management planning and other remedial predesign work, remedial design, remedial construction, reporting, and operation and maintenance including any revisions, reopeners, and additional work that may be required by the USEPA with respect to the "Landfill Cover" as defined herein under this Article for the Northwest-North Fill area. The Landfill Cover Remedial Obligations include, and *are expressly limited to*, those tasks identified in the Sharkey SOW at Appendix B, Section E. as specifically enumerated herein, but shall include any clarification, alteration or revision of such tasks made by USEPA during remedial predesign and remedial design:

- (i) **SOW (Appendix B), Section E, Paragraph 1(c): Landfill Cover**  
**Summary:** Provide a soil cover over the Northwest-North Fill Area, as described in Paragraph 3 of Section E of the SOW (see item (ii), below).
- (ii) **SOW (Appendix B), Section E, Paragraph 3: Soil Cover Requirements**  
**Summary:** Survey Northwest-North Fill Area conditions to determine the need, if any, for placement of soil cover. The need for and the depth of soil cover will be determined in accordance with the six criteria outlined in this paragraph of the SOW.
- (iii) **SOW (Appendix B), Section E, Paragraph 4: Drainage and Erosion Controls**  
**Summary:** Design and construct drainage and erosion controls for Northwest-North Fill Area where a soil cover is to be placed, if any, and for areas of the Northwest-North Fill Area where erosion has occurred in the past or is likely to occur in the future.
- (iv) **SOW (Appendix B), Section E, Paragraph 5: Miscellaneous Requirements**  
**Summary:** The design and construction of the Northwest-North Fill Area will conform to the following requirements (letters refer to the subparagraphs identified in this paragraph of the SOW):
  - (a) Uncontaminated soil originating from off-site source(s)

will be used for the soil cover at the Northwest-North Fill Area.

- (b) Vegetation will be installed over all disturbed surface areas at the Northwest-North Fill Area.
  - (c) The soil cover, including vegetation, and the drainage and erosion controls installed at the Northwest-North Fill Area will be maintained for thirty (30) years.
  - (d) All debris remaining on the surface of the Northwest-North Fill Area will be removed and appropriately disposed of.
  - (e) The Northwest-North Fill Area will be cleared and regraded as necessary prior to the placement of the soil cover and the drainage and erosion controls.
  - (h) Soil exhibiting a significant level of contamination which are discovered in the Northwest-North Fill Area, as deemed necessary by the USEPA, will be removed and appropriately disposed of.
  - (i) Permits shall not be required for any removal or remedial action encompassed by Section 121(e)(1) of CERCLA.
  - (j) A soil erosion and sediment control plan certification for the Northwest-North Fill Area shall be applied for and received from the Morris County Soil Conservation District prior to the beginning of construction and the requirements of the certification shall be complied with.
  - (k) If necessary, waste shall be crushed or compacted to prevent protrusion through the soil cover to be placed at the Northwest-North Fill Area.
- (v) **Site Security: Fencing**  
**Summary:** If required, a fence and gates as described in Section 3.0 of the Task 7 Report ("Conceptual Design of Selected Remedial Alternative"; Alfred Crew, Hazen and Sawyer; July 1987) shall be installed along the perimeter of the Northwest-North Fill

Area parallel to Edwards Road. This fence requirement was identified in a cost table provided by the Non-Owner Settling Defendants and prepared by Eckenfelder, Inc., dated April 1993. Although a requirement for the installation of a fence is not identified in the SOW, it has been included here as the only potential additional work item to be performed by HMAT as part of the Landfill Cover requirement for the Northwest-North Fill Area.

(vi) **Procedural Requirements:** **Project Management, Remedial Design,  
Remedial Action and Operation &  
Maintenance**

**Summary:** The work described above in items (i) through (v) for the Northwest-North Fill Area shall be performed in accordance with the elements for the following sections of the SOW, as they apply to the Northwest-North Fill Area:

SOW (Appendix B), Section F: Project Supervision and Management

SOW (Appendix B), Section G: Remedial Design

SOW (Appendix B), Section H: Remedial Action

SOW (Appendix B), Section I: Operation and Maintenance

**SOW EXHIBIT A**

**TARGET COMPOUND LIST**

**Volatiles**

Chloromethane  
Bromomethane  
Vinyl Chloride  
Chloroethane  
Methylene Chloride  
Acetone  
Carbon Disulfide  
1,1-Dichloroethene  
1,1-Dichloroethane  
1,2-Dichloroethene (total)  
Chloroform  
1,2-Dichloroethane  
2-Butanone  
1,1,1-Trichloroethane  
Carbon Tetrachloride  
Bromodichloromethane  
1,2-Dichloropropane  
cis-1,3-Dichloropropene  
Trichloroethene  
Dibromochloromethane  
1,1,2-Trichloroethane  
Benzene  
trans-1,3-Dichloropropene  
Bromoform  
4-Methyl-2-pentanone  
2-Hexanone  
Tetrachloroethene  
Toluene  
1,1,2,2-Tetrachloroethane  
Chlorobenzene  
Ethyl Benzene  
Styrene  
Xylenes (Total)

## Semivolatiles

Phenol  
bis(2-Chloroethyl) ether  
2-Chlorophenol  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
1,2-Dichlorobenzene  
2-Methylphenol  
2,2'-oxybis  
    (1-Chloropropane) #  
4-Methylphenol  
N-Nitroso-di-n-propylamine  
Hexachloroethane  
Nitrobenzene  
Isophorone  
2-Nitrophenol  
2,4-Dimethylphenol  
bis(2-Chloroethoxy)methane  
2,4-Dichlorophenol  
1,2,4-Trichlorobenzene  
Naphthalene  
4-Chloroaniline  
Hexachlorobutadiene  
4-Chloro-3-methylphenol  
2-Methylnaphthalene  
Hexachlorocyclopentadiene  
2,4,6-Trichlorophenol  
2,4,5-Trichlorophenol  
2-Chloronaphthalene  
2-Nitroaniline  
Dimethylphthalate  
Acenaphthylene  
2,6-Dinitrotoluene  
3-Nitroaniline  
Acenaphthene  
2,4-Dinitrophenol  
4-Nitrophenol

### Semivolatiles

Dibenzofuran  
2,4-Dinitrotoluene  
Diethylphthalate  
4-Chlorophenyl-phenyl ether  
Fluorene  
4-Nitroaniline  
4,6-Dinitro-2-methylphenol  
N-nitrosodiphenylamine  
4-Bromophenyl-phenylether  
Hexachlorobenzene  
Pentachlorophenol  
Phenanthrene  
Anthracene  
Carbazole  
Di-n-butylphthalate  
Fluoranthene  
Pyrene  
Butylbenzylphthalate  
3,3'-Dichlorobenzidine  
Benzo(a)anthracene  
Chrysene  
bis(2-Ethylhexyl)phthalate  
Di-n-octylphthalate  
Benzo(b)fluoranthene  
Benzo(k)fluoranthene  
Benzo(a)pyrene  
Indeno(1,2,3-cd)pyrene  
Dibenz(a,h)anthracene  
Benzo(g,h,i)perylene

Pesticides/Aroclors

alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC (Lindane)  
Heptachlor  
Aldrin  
Heptachlor epoxide  
Endosulfan I  
Dieldrin  
4,4'-DDE  
Endrin  
Endosulfan II  
4,4'-DDD  
Endosulfan sulate  
4,4'-DDT  
Methoxychlor  
Endrin ketone  
Endrin aldehyde  
alpha-Chlordane  
gamma-Chlordane  
Toxaphene  
Aroclor-1016  
Aroclor-1221  
Aroclor-1232  
Aroclor-1242  
Aroclor-1248  
Aroclor-1254  
Aroclor-1260



## INORGANIC TARGET ANALYTE LIST (TAL)

### Analyte

Aluminum  
Antimony  
Arsenic  
Barium  
Beryllium  
Cadmium  
Calcium  
Chromium  
Cobalt  
Copper  
Iron  
Lead  
Magnesium  
Manganese  
Mercury  
Nickel  
Potassium  
Selenium  
Silver  
Sodium  
Thallium  
Vandium  
Zinc  
Cyanide

## **SOW EXHIBIT B**

### **WELL CHEMICALS AND WELL TRIGGER LEVELS**

<b>WELL CHEMICAL</b>	<b>WELL TRIGGER LEVEL</b> (ppb)
Total Volatile Organic Compounds	1000
Benzene: Rockaway River	50
Whippany River	100
Bis(2 Ethylhexyl) Phthalate	100-299 (a)
	300 (a)
N-Nitrosodiphenylamine	10
Arsenic	50
Cadmium	10
Chromium	50
Lead	50
Mercury	2
Silver	50
Selenium	10
Barium	1000

(a)- If concentrations of Bis(2 Ethylhexyl) Phthalate between 100 and 299 ppb are detected in any GWM well, Settling Defendants shall initiate an evaluation program to determine the impact of Bis(2 Ethylhexyl) Phthalate on the associated Rivers. The details of the evaluation program will be developed during Remedial Design. Any concentration greater than or equal to 300 ppb shall cause Settling Defendants to initiate the GWE program as indicated in Section 13.

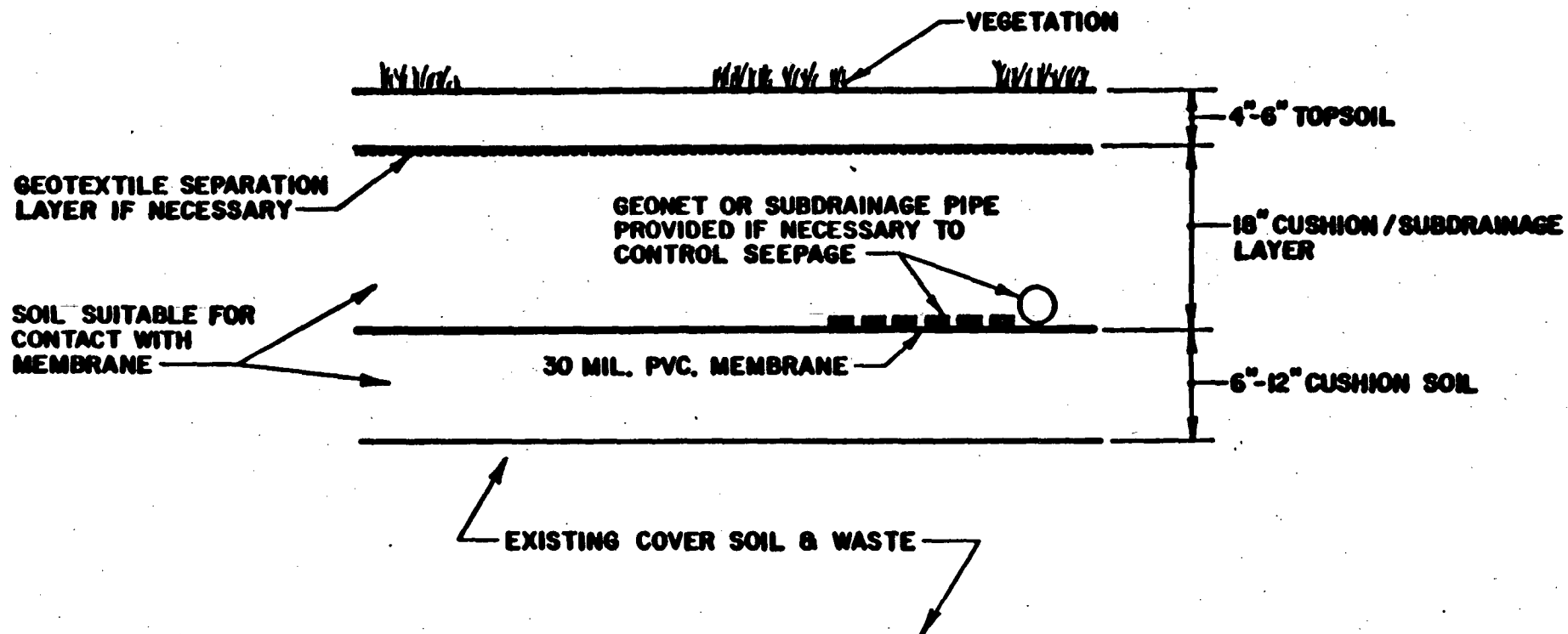
# SOW EXHIBIT C

## RIVER CHEMICALS and RIVER TRIGGER LEVELS

River Chemical	River Trigger (ppb)	PQL* (ppb)
Acrolein	320	50
Acrylonitrile	0.059	8
Benzene	1.2	1
Bromoform	4.3	1
Chlorobenzene	680	1
Chlorodibromomethane	0.41	1
2-Chloroethylvinyl Ether	-	5
Chloroform	5.7	1
Carbon Tetrachloride	0.25	1
Dichlorobromomethane	0.27	1
o-Dichlorobenzene (1,2)	2700	1
m-Dichlorobenzene (1,3)	400	1
p-Dichlorobenzene (1,4)	400	1
1,2-Dichloroethane	0.38	1
1,1-Dichloroethane	-	1
1,1-Dichloroethylene	0.57	1
1,2-Dichloropropane	0.52	1
1,3-Dichloropropylene	10	5
Ethylbenzene	3100	1
Methyl Bromide	48	1
Methyl Chloride	5.7	1
Methylene Chloride	4.7	2
1,2-Trans-Dichloroethylene	700	1
1,1,2,2-Tetrachloroethane	1.7	1
Tetrachloroethylene (TCA)	0.8	1
Toluene	6800	1
1,1,1-Trichloroethane	3100	1
1,1,2-Trichloroethane	6.0	1
Trichloroethylene (TCE)	2.7	1
Vinyl Chloride	2	1

### Footnotes:

- \* It should be noted that the practical quantification limits (PQLs) for some of the listed river chemicals are higher than the corresponding trigger levels. For those compounds, compliance with the trigger levels will be determined by analytical results indicating the absence of detectable concentrations (i.e., results reported as non-detect).



**SOW EXHIBIT D  
CAP DESIGN CROSS SECTION**

**SHARKEY LANDFILL SITE  
MORRIS COUNTY, NEW JERSEY**

